CLUSTER/ONE MODEL A™

Network Print Server
Product Number A-2803

System Manager's and User's Guide

NESTAR

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NESTAR SYSTEMS, INCORPORATED

CLUSTER/ONE MODEL A (TM)

NETWORK PRINT SERVER, VERSION 2.0
Product Number A-2803

SYSTEM MANAGER'S AND USER'S GUIDE

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How To Use This Manual

The Network Print Server (NPS) (Nestar Product Number A-2803) is a set of programs and textfiles that allow files to be printed on printers connected to the Nestar Cluster/One Model A network. Network File Server Version 1.2 is required. Print requests can be queued from any station using the DOS PRINT and Pascal REQUEST programs. Print requests are processed by dedicated workstations with printers connected to them. These workstations run the system's SERVER program.

This document is designed to serve as a combined User's and System Manager's guide to the A-2803 product, and assumes a general knowledge of the Cluster/One Model A and its use in the Pascal and DOS BASIC environments. For more information about the Cluster/One network, see the Nestar Cluster/One Model A Network File Server User's Manual (Publication LC20-0101) and the Nestar Cluster/One Model A Network File Server System Manager's Manual (Publication LC20-0102).

Chapter 1 of this document provides an introduction to the Network Print Server. Chapter 2 describes how files can be printed from the Apple DOS BASIC environment. Chapter 3 describes how to print files from the Apple UCSD Pascal environment. Chapters 4, 5, and 6 describe NPS installation, configuration, operation and maintenance for the System Manager. Codefiles and textfiles used by NPS are summarized in the table on page 4-15. Figures that illustrate system operation are found on pages 1-2 and 4-2.

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Chapter One

Introduction to the System

1.0 The Network Print Server

The Network Print Server is designed for ease of use. To print a file, simply RUN PRINT from the Apple DOS environment or X(ecute Pascal:Request from the Pascal environment.

These print request programs, discussed in detail in the following chapters, prompt you for the names of the files that you want printed, the number of copies to be printed, type of paper to be used, and other various options for the job.

The print request programs take the information that you give them and place it on one of your network's hard disks or 8" floppy disks, in a newly created "Request" file. Requests for printing from your workstation and from other workstations are queued up on the disk, where they wait to be read (See Figure 1, Page 1-2).

Meanwhile, the printers on your network are controlled by "printer server" computers. Just as network workstations like yours use the print programs to create and queue up print requests, printer server stations use a server program to read and carry out those requests.

These printer server stations check the Request queue on the file server disk every minute or so. When a newly created print-request file is found, the printer servers read it. If you have requested that a particular printer on the Network do your job, the print-server computer controlling that printer will find the file that you want printed, check to see how many copies you have asked for, and print it on the printer you have specified.

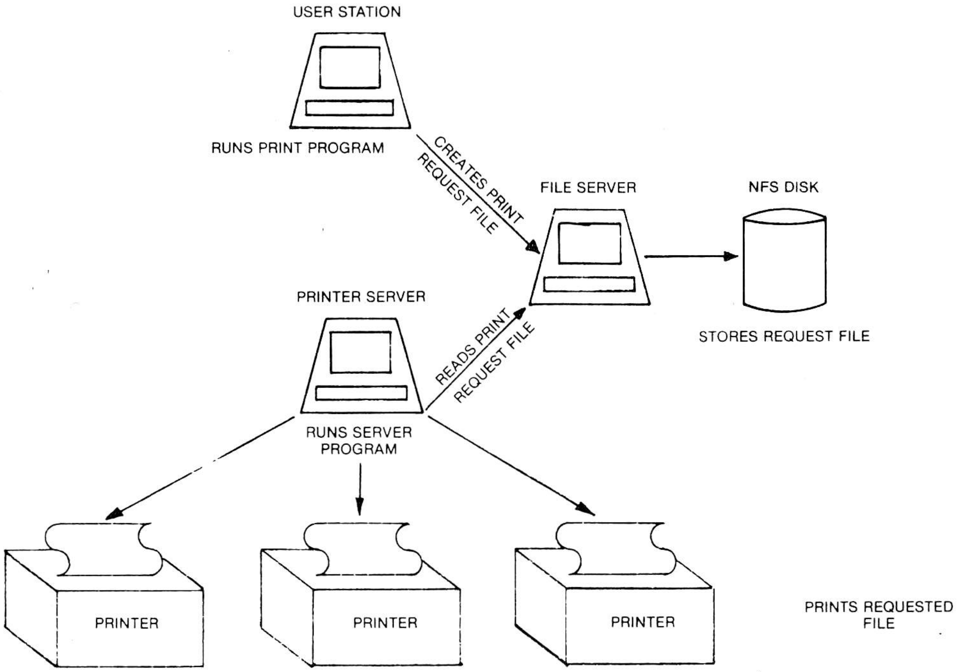
The Network Print Server system can print the following types of files:

Pascal textfiles
DOS text, Applesoft, and Integer Basic files

The Network Print Server system cannot print the following types of files:

DOS relocatable files
Pascal codefiles

FIGURE 1



Chapter 2 of this manual discusses how to print files from the DOS environment. Chapter 3 explains how to print files from the Pascal environment. Details of system operation, configuration, and maintenance, for use by the System Manager, are presented in Chapters 4, 5, and 6.

1.1 Multiple Printers and Multiple Setups

Cluster/One networks may have more than one printer attached. In some cases, several workstations are dedicated as print servers, with each workstation controlling several printers.

The print programs allow you to choose the printer (and/or the print server) to do your job. If any printer or print server is acceptable, the programs allow you to specify "ANY".

Many printers can be set up in more than one way. For example, different ribbons may be used for different jobs. Many printers will accept more than one kind of paper or form. For instance, a printer might be used to print labels, checks, and text. The print programs allow you to specify which printer setup is to be used.

When you specify a particular "setup" in your print request, that request will not be executed by the print server station until the System Manager tells the server station, from the server console, that the printer has been set up correctly. If any setup is acceptable, the request programs allow you to specify ANY.

Multiple printers and multiple setups are discussed in more detail in Sections 2-2 and 3-2 of this manual. The System Manager can provide you with the names and/or addresses of print servers and the names of the printers currently attached, and the setups in use.

1.2 Multiple File Servers and Multiple Networks

Some Cluster/One networks have more than one file server station. Each file server controls its own floppy disks and/or hard disks. The print servers can check with each file server on the network for print requests.

In both the Pascal and DOS environments, users can specify files to be printed from any file server in the network that the System Manager allows. Ask the System Manager for the names and/or addresses of the file servers that can be accessed. Print requests that you queue on your default file server can specify files to be printed that reside on other file servers.

A single Network print server can serve several physical networks at once. The server is simply connected to the different networks by network interface cards placed in different slots in the server. Users on a network are not affected by such a multiple attachment. They queue print requests as if the print server served one network alone. However, files residing on another network can be printed for a user if the System Manager has configured the system to allow it.

Multiple file servers and multiple networks are discussed in more detail in Sections 2-3 and 3-3 of this manual. The System Manager can tell you which file servers are serviced by which print servers in your system.

Chapter Two

The DOS PRINT Program

2.0 Printing DOS and Pascal Files From the DOS Environment

The following sections explain how to print DOS and Pascal files from the DOS environment, how to specify special printing options, and how to set printing defaults for your DOS workstation.

Number of copies, priority, and other printing options can be specified. No special programming or system knowledge is required beyond some familiarity with the DOS operating system environment and the Cluster/One Model A system.

Chapter 3 describes use of the print system in the Pascal environment. Chapters 4, 5, and 6 describe system configuration, operation, and maintenance in detail.

2.1 Printing a File

To print a file in the DOS environment, mount a virtual disk containing the program PRINT; then, RUN PRINT. (Applesoft BASIC in ROM or a 16K RAM card must be available). A page of print options and a blinking cursor will appear:

```
-----PRINT REQUEST------VERSION ___-----

  FILE(S) TO PRINT:

      NFS PATHNAME:

       FILE-SERVER:

        PAGE TITLE:

    IDENTIFICATION:

  NUMBER OF COPIES: 1
      PRINT SERVER: ANY
     PRINTER MODEL: ANY
    EJECT (0=NONE): 58
             SETUP: STANDARD
PRIORITY (L/S/H/O): STANDARD

    RETURN TO SELECT AND ENTER FIELD
    ESC TO EXIT        ? FOR DEFAULT
```

Press <Return> to move the cursor from line to line.

As can be seen from this sample page of options, the Network Print Server can provide values in advance (defaults) for many of the printing options. You may replace any default with a new value by moving the cursor to the appropriate line, typing in a new value, and pressing <Return>. To replace a default value with a blank, type <space><Return>. Defaults that are displayed when PRINT is run from a shared system DOS volume are set by the System Manager. To set your own defaults, in a PRINT copy saved on your own DOS volume, see Section 2.5.

2.2 Printing Options

The printing options and their standard defaults are

FILE(S) TO PRINT

Type in the name(s) of the DOS or Pascal files to be printed, followed by <Return> to accept the names. Separate filenames by commas. If more than one filename is entered, all must reside on the same virtual volume. No system default is given. At least one filename must be entered.

Files must reside on a hard disk or floppy disk served by a Network file server. If the file server is not the default file server for your network, ask the System Manager whether it is part of the print server system. Files from other networks served by the print system can be printed, if the System Manager has configured the system to allow it.

NOTE: Text, Applesoft, and Integer Basic files can be printed (Types T, A, and I), as well as Pascal text files. Do not attempt to print Relocatable files (Type R in your catalog). Pascal code files cannot be printed.

When Integer and Applesoft program files (not textfiles) are printed out, control characters are printed in the form ^ <character>; that is, ^D for <CTRL> D.

NFS PATHNAME

Type in the full Network pathname of the virtual volume upon which the file to be printed resides (it need not be mounted). The volume must be on a disk served by the file server specified (next prompt). Partial pathnames are not allowed, even if you have a default directory set at your station.

Files to be printed may reside in virtual Network volumes that are protected by passwords. This protection may prevent the files from being read (and printed) unless you provide the correct passwords.

NFS passwords are entered in the form:

```
/MAIN/USERS/TEST:password/EXAMPLE:password
```

Press <Return> and the pathname will be redisplayed without the passwords.

FILE SERVER

Specify the file server name or address (in hexadecimal with the "$") of the file server which controls the disk upon which the files to be printed reside. If no value is entered, your station's default file server is assumed.

Ask the System Manager for the names and addresses of those file servers currently served by the print server system. The file server may be on another network, as long as the System Manager indicates that the file server is part of the print server system.

PAGE TITLE

The title that you type in will be printed at the top of each page of your printing job, along with the date and time (if a clock/calendar card is present) and page number. Two blank lines will precede the title line, and the name of the file being printed (and its Network volume) will appear on the line following it. Another blank line completes the 5-line header on each page. If the page title field is left blank, no page titles will be printed and your job will begin at the top of the page. If a title is provided or the default is accepted, pages will be numbered. Otherwise, page numbering must be provided by the file being printed.

Type <space> <Return> to remove a default title and have no title printed.

Text processing programs usually include their own title and page number values. When printing files of processed text, "PAGE TITLE" in the list of options should be left blank. If a default is displayed, remove it by entering <space> <Return>.

IDENTIFICATION

The Identification field allows you to name your request, so that you can check on it later. The "Identification" line is used by the "S" (Display request status) and "D" (Display queue status) commands in the Pascal version of the print request program (available in the Pascal environment). The status of your queued print request is discussed in Section 2.4. The Identification field may also be printed on the header page of your print job, if your System Manager has formatted the header page to include it.

NUMBER OF COPIES

The default is 1; between 1 and 999 are allowed. If multiple files A, B, C have been specified, copies will be printed in the order A, B, C, A, B, C,...

PRINT SERVER

In the Network Print Server system, each printer is associated with three identifying name tags: the name or number of its print server station, its own (printer) name, and the name of the type of setup used in it. For a job to be printed on a specific printer, the name tags that are set in the list of print options shown above in Section 2.1 must match the name tags given to the printer by the System Manager.

The "PRINT SERVER" tag identifies the station that controls a particular printer (or printers). The default in the example above is ANY; to have a particular printer do your job, specify the printer's server station number in decimal or in hex (preceded by "$"), or by the name of the print server station, if it has been given one by the System Manager.

PRINTER MODEL

The "PRINTER MODEL" tag is the name given to a particular printer by the System Manager. This name may describe, for example, the type of printer ("DAISYWHEEL"), or its function ("CHECKWRITER"), or its location ("2NDFLOOR"). Several printers may have the same name, and will be differentiated by their PRINT SERVER and SETUP tags.

EJECT

The Eject option controls page length. In the menu above, the default is 58; thus, after 58 lines have been printed on a page, the printer will eject the page and begin a new one. Entering the number 0 will cause the printer to print without ejecting. Text will then be continuous, with no breaks between pages. Text formatted by a text processor will usually require an Eject value of 0, since the text processor will include page length commands for the printer within the textfile.

SETUP

In addition to its name and the name or address of its print server, each printer is identified by a setup tag. The SETUP tag is used to describe the type of paper or form being used in the printer, ribbon type, and other details of configuration. Character spacing, lines per inch, forms length, and ribbon may be different for special forms in the printer. The print server uses SETUP to mean a combination of setup parameters required to use a particular form. In the menu above, the default value for SETUP is "STANDARD". The System Manager at each installation determines what kind of paper or form will be standard for each printer, how the printer variables are to be configured, and what the name of the setup will be.

For example, if you wish to print material on colored paper, queue your print request using the word "COLOR" (or some other name designated by the System Manager) in the "SETUP" category. The job will not be printed until the SETUP tag for the specified printer at the specified server station has been changed to "COLOR". Make this change at the print server console (or have the System Manager do so), after the colored paper has been installed in the printer. The procedure for changing the SETUP at the print server station console is described in detail in Section 6.1.1.

The value "ANY" is allowed for the SETUP tag.

PRIORITY

Print jobs are performed by the Print Server according to the priority assigned to them: High priority jobs are printed first (in the order received), Standard next, and Low last. Jobs with Overnight priority are printed during a special time period. The hours of the Overnight printing period are set by the System Manager. Overnight priority is meaningful only if a clock/calendar card is present in your system.

Once a printer begins a job, it will continue printing even if higher priority jobs are subsequently queued. For this reason, very long jobs should be given Overnight priority rather than Low priority.

When all print request information has been entered, type <ESC>. The PRINT program will display a warning if any necessary information is missing from your request. Otherwise, the message

```
ISSUE PRINT REQUEST (Y/N/ESC)?
```

will appear. Typing "N" will return you to the list of print options. Typing <ESC> will quit the program without issuing a print request. Typing "Y" will cause your print request to be issued. The messages

```
PRINT REQUEST ISSUED

MORE FILES TO PRINT (Y/N)?
```

then appear. Typing "N" quits the program. Typing "Y" returns you to the list of print options. In this way, PRINT allows requests to be entered for more files to be printed. Your previous option entries will be displayed as the new defaults (with any passwords deleted).

2.3 Multiple File Servers and Multiple Networks

The print request that you enter by using the PRINT program is stored as a request file on a disk served by your default file server.

This request file will be read by the print-server stations online, and the correct server will cause your files to be printed for you. This print server will check to see which file server you have specified in the options list, and will search on that file server's disks (and on no others) for the file to be printed.

You may enter the name or station address of any file server station, on your network or any other network to which the print servers are attached, if the System Manager has configured the print server system so that the file server that you want is part of the system.

If two file servers (on different networks) have the same name or the same address (and no names), the print server will not necessarily select the one you want, unless it happens to be your default file server.

2.4 The Status of Your Print Request: The Pascal Server Command

The message "PRINT REQUEST ISSUED" displayed by PRINT signifies that the program has created a "print request" file on a disk of your default file server. This request file contains in it the names of the files you want printed, the name of the virtual volume upon which they reside, and the name of the Network file server for the disk where the virtual volume resides. The request file also contains such information as number of copies to be printed, page length (eject value), and so on.

This newly created file will be read by the print server(s) active on your system and your file will be printed out on the printer you specify.

To check the current status of your print requests or the status of the print queue (the lineup of print requests, yours and others), or to kill a request that you have made, it is necessary to boot a Pascal volume and use programs available in that environment.

If a bootable Pascal volume is available to you, check the status of your job by booting it and X(ecute)ing Pascal:Request from the Command line. When the Request program comes up, select "S" (Display request status) or "D" (Display queue status) from the print server menu. The status of your request can then be displayed by specifying its identification (which you entered with your request), or its filename and volume name. Select "K" to kill a print request that you have entered. These commands are discussed in Section 3.4.

If no bootable Pascal volume is available to you, ask the System Manager for the status of your queued request. If the System Manager tells you that the print server has skipped your job, it means that one or more of the name tags in your request (for print server, printer, and setup) do not match those currently set, or that the file server you have specified (where the files to be printed reside) is not currently active or part of the print system. This indicates that either you have made a typing error when entering your request, or that the System Manager will have to reconfigure the system for your job to be printed.

2.5 Presetting Print Defaults for Your Workstation

The DOS PRINT program is written in Applesoft BASIC. The user's name and the inputs for the menu defaults shown above begin at line 50000. To change these defaults to those of your own choosing, load your copy of PRINT, list lines 50000 to 50090, and edit them to suit your needs. Save the results on your own disk, not on a public DOS disk.

The title page for your job may be configured by the System Manager to display a user-station logo. In the case of DOS stations, this logo will be your station address. The title page may also include a value called "Name". This value can be specified by Pascal users; for DOS workstations it is left blank.

2.6 Printing DOS Files on a Local Printer

PRINT is not designed for use with local printers. To print files at your workstation, use the DOS PR# and LIST commands, as described in the Apple II DOS Manual.

Chapter 3

The Pascal Print Request Progam

3.0 Printing DOS and Pascal Files From the Pascal Environment

The following sections explain how to

a. Print DOS and Pascal files from the Pascal environment
b. Specify special printing options
c. Set printing defaults for your workstation

3.1 Printing a File

To print a Pascal file, X(ecute) Pascal:Request from the Pascal command line. REQUEST will display a greeting banner briefly, followed by a menu:

```
Server Request Menu  Version ___

  Server Commands. . .
    P - PRINT server request
    F - FILE server request
    S - Display STATUS of previous requests
    D - Display STATUS of print queue
    K - KILL a previous print request
    Q - QUIT (exit this program)
    H - HELP (display tutorial)
    ? - HELP (display tutorial)

Enter command letter?
```

To print a file, press "P" and <Return>. (The other Server Commands in the menu are discussed in Section 3.2.) A page of printing options will be displayed:

```
Print Request    Version ___

-->      File(s) to print?

              NFS Pathname:

               File server: $FE

                Page title:

            Identification:

         Number of Copies: 1
             Print Server: ANY
            Printer Model: LINEPRINTER
          Eject (0=none): 58
                   Setup : STANDARD
      Priority (L/S/H/O): STANDARD
```

As can be seen from this example, the print request program allows you to specify more than just the file to be printed. Options such as number of copies, length of page, and job priority can be selected by moving the arrow at the left of the menu from option to option by typing the <Return> key.

The program may provide values in advance (defaults) for many of the printing options. You can replace any default with a new value by moving the arrow cursor at the left to the appropriate line, typing in the new value, and pressing <Return>. System defaults are set by the System Manager, and may be displayed for many of the print options, as shown above, each time that you use the program. Changing them to suit your own needs is discussed in Section 3.5.

Until you exit the program, values entered in the page of printing options will be used as defaults for subsequent print requests.

NOTE: To reach this list of options directly from the Pascal command line, X(ecute) Pascal:Print instead of Pascal:Request. (The other Request commands in this case will not be available.)

3.2 Printing Options

The options and their defaults are:

FILE NAME(S)

More than one file can be specified (DOS or Pascal);

separate file names by commas. Files must reside on the same volume. The Pascal volume name of a file can be included, if the volume is currently mounted:

```
File name(s)? TEST:EXAMPLE
```

where the file EXAMPLE resides on the Pascal virtual volume named "TEST". If a default volume is listed in the next line of the menu, different from the volume you specify, the default volume pathname will be corrected automatically on your screen. Volume numbers (e.g., "#7:") may also be used.

If the volume containing the file to be printed is not currently mounted, enter the filename alone. (The filename can be entered alone in any case.)

Files must reside on a hard disk or floppy disk served by a Network file server. If the file server is not the default file server for your network, ask the System Manager whether it is part of the print server system.

You need not add ".text" to the end of a filename. The print servers will automatically look first for "filename", and if the filename is not found, will look for "filename.text". Following the Apple Pascal convention, if "filename." is entered, the print server will look <u>only</u> for a file called "filename" (without the .text or the ".").

<u>NFS PATHNAME</u>:

Enter the complete pathname of the virtual Network volume upon which the file(s) to be printed reside.

If a network default directory is set, you may enter a partial pathname. For example, if /MAIN/USERS is the default directory, you may enter

```
TEST/EXAMPLE
```

instead of /MAIN/USERS/TEST/EXAMPLE.

If a pathname is entered that doesn't begin with "/", the program will supply the current system default pathname.

To have a particular default pathname provided each time that you execute the Request and Print programs, see Section 3.5.

Files to be printed may reside in virtual Network volumes that are protected by passwords. This protection may prevent the files from being read (and printed) unless you provide the correct passwords.

If NFS passwords have been set, enter them in the form:

```
/MAIN/USERS/TEST:password/EXAMPLE:password
```

Press <Return> to accept the pathname and it will be redisplayed without the passwords.

FILE SERVER

Specify the file server name or address (in decimal, or hexadecimal preceded by the "$") for the system disk upon which the files to be printed reside.

Ask the System Manager for the names and addresses of those file servers currently served by the print server system.

The file server specified may be on another network, as long as the System Manager indicates that the file server is part of the system.

PAGE TITLE

The title that you type in will be printed at the top of each page of your printing job, along with the date and time (if a clock/calendar card is present) and page number. Two blank lines will precede the title line, and the name of the file being printed (and its Network volume) will appear on the line following it. Another blank line completes the 5-line header on each page. If the page title field is left blank no page titles will be printed and your job will begin at the top of the page. If a title is provided, or the default is accepted, pages will be numbered. Otherwise, page numbering must be provided by the file being printed. Type <space> <Return> to remove a default title and have no title printed.

Text processing programs usually include their own title and page number values. When you wish to print files of formatted text, "PAGE TITLE" in the list of options should be left blank. If a default is displayed, remove it by entering <space> <Return>.

IDENTIFICATION

The word or words typed here as identification will appear as your job's identifying "I.D." as it waits in the print queue to be printed. You may enter a descriptive I.D. If left blank, the system will fill in the field with "filename on volumename" (the name of the file you have specified to be printed, and the volume upon which it resides).

The "Identification" line is used in the Server commands "S" (Display request status) and "D" (Display queue status) discussed below in Section 3.4. When you check the progress of your job request by displaying the queue of waiting jobs using the "S" or "D" commands, your request will be easier to find because of the I.D. line you attach to it. This line may also appear on the header page for your print job, if the System Manager has formatted that page to include it.

COPIES

The default value for COPIES is 1; between 1 and 999 are allowed. If multiple files A, B, C have been specifed, the copy sequence will be A, B, C, A, B, C,...

Pages will be numbered consecutively and the page number will be reset only at the end of each copy, not at the end of each file.

PRINT SERVER

In the Network Print Server system, each printer is associated with three identifying name tags: the name or number of its server station, its own (printer) name, and the name of the printer-parameters setup used in it. For a job to be printed on a specific printer, the name tags that are set in the list of options above must match the name tags given to the printer by the System Manager.

The "PRINT SERVER" tag identifies the print server station that controls a particular printer (or printers). The default in the page of options shown above is ANY; to have a particular printer do your job, specify the printer's server station number in decimal or in hexadecimal (preceded by "$"), or enter the name of the print server station, if it has been given one by the System Manager.

If printers at more than one print server station are acceptable (but not "ANY" printer), enter the print server station names or addresses (in decimal, or in hex, preceded by a $.) separated by commas.

PRINTER MODEL

The "PRINTER MODEL" tag is the name given to a particular printer by the System Manager. This name may describe, for example, the type of printer ("DAISYWHEEL"), or its function ("CHECKWRITER"), or its location ("2NDFLOOR"). Several printers may have the same name, and be differentiated by their SERVER and SETUP tags, and their addresses.

EJECT

The Eject option controls page length. In the list of options above, the default is 58; thus, after 58 lines have been printed on a page, the printer will eject the page and begin a new one. Entering the number 0 will cause the printer to print without ejecting. Text will then be continuous, with no breaks between pages.

Note that most output from text processing programs should be printed with EJECT=0. This does not mean that the text will be continuous: most text processing programs include page-eject commands for the printer.

The print server will generate a page eject when it encounters the Pascal compiler option for page feed.

SETUP

In addition to its name and the address or name of its print server, each printer is identified by a setup tag. The SETUP tag describes the type of paper or form being used in the printer, with details of printer parameter configuration. Some forms used in your printer may require a different printer setup from the standard forms. Character spacing, lines per inch, forms length, and ribbon may be different for special forms. The print server uses SETUP to mean a combination of setup parameters required to use a particular form.

In the menu above, the default value for SETUP is

"Standard". The System Manager at each installation determines what kind of paper or forms will be standard for each printer and what the name of that setup will be.

For example, if you wish to print material on colored paper, queue the print request using the word "COLOR" (or some other tag designated by the System Manager) in the "Setup" category. The job will not be printed until the Setup tag for the specified printer at the specified server station has been changed at the server console to "COLOR". Make this change (or have the System Manager do so), after the colored paper has been installed in the printer. The procedure for changing setup tags at the server console is described in detail in Section 6.1.1.

The value "ANY" is allowed for the SETUP tag.

PRIORITY

Print jobs are performed by the Print Server System according to the priority assigned to them: High priority jobs are printed first, Standard next, and Low last. Jobs with Overnight priority are put aside and printed in a special time period. The hours of the Overnight printing period are set by the System Manager. Overnight priority is meaningful only if your system has a clock/calendar card.

Once a printer begins a job, it will continue it even if higher priority jobs are subsequently queued behind it. For this reason, very long jobs should be given Overnight priority rather than Low priority.

Typing <Escape> at any time will cause Request to redisplay the menu as you have filled it in, and to display the message

```
[Type <ESC><RETURN> to abort.]------------------------
Issue print request (yes/no)?
```

Typing "N" will return you to the list of options. The values you have entered are still displayed, as defaults for your next job.

Typing "Y" will cause the files specifed to be queued for print. That is, the program will create a "print request" file on a disk served by your default file server. This request file will contain the names of the files you have asked to be printed, as well as the number of copies and other information you have provided.

The print server stations will read this request file, and the correct printer will print out the files you have asked for. (Section 3.4 discusses how to check on the status of a print request that you have created, and how to kill a request before it is printed.)

When your request is queued, a message such as

```
FILE EXAMPLE ON /MAIN/USERS/SMITH/TEXT queued for print
Server $D0 notified (currently idle)

More files to print (yes/no)?
```

will be displayed.

Typing "Y" will cause the list of options to be redisplayed, with the values used for the previous request retained as defaults. Passwords entered with the last request will be retained but will not be displayed.

Typing "N" will return you to the Server command line (or to the Pascal command line, if you originally X(ecuted) Pascal:Print instead of Pascal:Request).

Typing <esc> <Return> will return you to the Pascal command line.

3.3 Multiple File Servers and Multiple Networks

The print request that you enter by using the "P" command (or by executing Pascal:Print) is always stored as a request file on a disk served by your default file server.

This request file will be read by the print-server stations online, and the correct server will cause your files to be printed for you. This print server will check to see which file server you have specified in the options list, and will search on that file server's disks (and on no others) for the file to be printed.

You may enter the name or station address of any file server station, on your network or any other network to which the print servers are attached, if the System Manager indicates that the file server you wish to specify is part of the print server system.

3.4 The Status of Your Print Request: The Server Command Menu

We now return to the Server Command Menu, displayed when you first X(ecute) Pascal:Request:

```
Server Commands. . .
                P - PRINT server request
                F - FILE server request
                S - Display STATUS of previous requests
                D - Display STATUS of print queue
                K - KILL a previous print request
                Q - QUIT (exit this program)
                H - HELP (display tutorial)
                ? - HELP (display tutorial)
```

As we have seen, entering "P" takes us to a list of printing options and allows us to create and queue print requests. The command letters "K", "D", "S", "F", "Q", "H" and "?" will now be discussed.

"D" - Display STATUS of print queue

Typing "D" when the Server Command Menu is displayed will cause the program to display current information about the print server system and print request-queue. First, all print server stations are listed:

```
Active Servers
  ($B0)   NPS   FISCAL (busy) Printing #24 for SMITH:
                              Page 7 line 38
  ($C0)   NPS   2NDFLOOR      Currently idle
  ($D0)   NPS   R&D           Currently idle
```

Print server station addresses (in hexadecimal), names and status are displayed. If a printer is printing a job via a print-server station, information on the progress of the job is also displayed.

Next, print requests that have not yet been processed by the print servers are listed:

```
New Requests (not yet entered in queue):
  12/01   14:33   PRINT
```

If servers are printing other jobs when new requests are queued, the new requests must wait to be read. They are soon read by active servers, however, and moved to the active queue, which is displayed:

```
Date  Time Qnum User  Status  Identification
12/01 11:30  28 DOE   Waiting File LIST on
                              /MAIN/USERS/DOE/B
                              Note: Needs THERMAL setup RED

12/01 14:10  30 SMITH Active  File EXAMPLE on
                              /MAIN/USERS/SMITH/A

12/01 12:16  29 JONES Completed File TEST on
                              /MAIN/USERS/JONES/A
```

As shown in this example, date and time of the request's creation are displayed, together with the queue number assigned to the job, and the user's name (Section 3.5 below describes how to enter your name as "user").

If passwords have been set on NFS pathnames, they are not displayed. However, their existence is indicated by the presence of a colon following the directory or volume name with the password set.

The display will list as many of the currently queued print requests (active, waiting, and completed) as will fit on the screen. However, waiting requests will be shown at the top of the list, oldest first.

"Active" requests are being printed; "completed" requests have been printed or killed; "waiting" requests have print parameters specified that do not match those currently set by the System Manager (such as SETUP type). Such jobs will be held, waiting, until the System Manager changes the system parameters to match the request or until the request is killed. (The Kill command ("K") is described below.)

When multiple print servers are present, a job may temporarily be listed as "waiting" because its parameters do not match those set for the first print server that reads it. When the intended server reads it, it will become "active".

For waiting requests, the display will list (one of) the print parameters that do not match those currently set for the print system, after the word "needs":

```
Note: Needs THERMAL setup RED
```

In the sample display above, for example, request number 28 specifies that the job for user "DOE" be printed on a printer named "THERMAL" using the "RED" setup. The current configuration of this print server does not include a printer named "THERMAL" with the "RED" setup. Request 28 must wait until the System Manager reconfigures the system, or until another print server with the proper setup reads the queue. If a number of skipped requests have accumulated, recently queued requests may not fit on the screen. If this is the case, use the "D" command described below to check the status of your job.

To freeze a display, hold down the <ctrl> key and type S. The message

```
==>suspended<==
```

will appear at the bottom of the screen. Type any key to have the updating resume. (After one hour of updating the display on your screen, the program will automatically enter this suspended mode.)

Note: In the case of multiple file servers and/or networks, a print request queue is maintained for each file server. However, only the entries in your default file server queue are shown. You may be competing for a printer, then, with requests from user requests not shown in your queue. However, user requests from other file servers and connected networks <u>will</u> be displayed, if they are currently being printed.

"<u>S</u>" - <u>Display STATUS of previous requests</u>

To learn more about specific queued requests than is possible with the "D" command, type "S" when the Server command menu is displayed. A number of options will be displayed

```
L(ist) D(isplay) H(elp) Q(uit)?
```

Typing "L" or "D" will cause the prompt

```
Enter queue number or id?
```

Entering the queue number for your request will cause the "L" command to display date and time of the request, queue number, user identification, and request status.

Given the user id or queue number of a request, "S" will list:

Your station name or station address
Parameter change needed
Queue date and time
User ID and station address
Job status
Priority

Print Server requested
Print Servers that have skipped the request

(Station name is set using Pascal:Setprofile)

Instead of queue number, you may enter:

1. "ALL"
2. "Identification" value
3. Your user name

The "L" and "D" commands will then display information for:

1. All currently queued requests (and as many of the completed requests as your system serves - usually 200), or

2. All requests queued that have the "Identification" you specify somewhere in their "Identification" field.

3. All requests queued under your user name.

Note that the first time you use the "L" and "D" commands to check the status of a request, you will not know the queue number of the request. However, you will know its identification and your user name and can specify the message by using one or the other.

If you have queued more than one print request recently, but are interested in the status of only one, it will be to your advantage to use unique identification (such as the name of the file to be printed) for each job.

"K" - KILL a previous print request

To remove a print request from the print queue before it has been printed, simply press "K" when the Server Command menu is displayed. You will be asked to provide the queue number of your request, your user name, or other print request information for your job.

The queue number of your job is obtained by using the "L" option that is part of the Kill menu. "L" functions as described in the previous section.

Providing your queue number will cause the print request program to remove that specific request from the request queue. If instead of specifying a single queue number, you tell the request program which user you are, the program will display one at a time the print requests that you currently have queued. Select the one you want removed, and the request program will kill it.

The Kill command actually creates another print request file, which contains the kill request. Typically, the print server station will read the request to kill a job while the job is waiting to be done, and the server will remove the original request from the queue.

Requests can be killed only at the user station from which they were made. Requests currently being printed can only be aborted at the print server console.

"F" - FILE server request

Connects (chains) you to the NFS CMD command program. Enter NFS commands as needed. The commands will be executed and the prompt repeated. Type Q to exit.

"Q" - QUIT (exit program)

Typing "Q" returns you to the Pascal command level.

"?" and "H" - HELP (display tutorial)

Typing "?" or "H" causes the question

```
Help on what subject?
```

to be displayed. Enter "STATUS", "DISPLAY", "PRINT", "KILL", "NFS", "HELP" or "?" and information on how to use that particular Print Server command will be displayed. Typing "ALL" will cause all the help information to be displayed.

3.5 Presetting Print Defaults for Your Workstation: Defaults.Text

When REQUEST is executed at a user station, it first looks on the user's boot volume for a file called "Defaults.Text". To preset print options, use the Pascal Editor to create Defaults.Text on your boot volume.

The parameters that can be preset using the Defaults file are:

- User (Network ID)
- Name (of User)
- Network Pathname
- File Server
- Print Server
- Printer Model
- Eject Value (Page length)
- Setup

Page Title
Identification (of job)
Priority
Copies

The format for entering defaults in Defaults.Text (except for "User" and "Name") is

print: <parameter><value>

Specifically,

To Set	Enter in Defaults.Text
User	User: User ID
Name	Name: User Name
Network Pathname	Print: Path <Pathname>
File Server	Print: NFS <station name or address>
Page Title	Print: Title <"Title">
Identification	Print: Identification <"Identification">
Print Server	Print: Server <stn name or address>
Printer Model	Print: Printer <stn name>
Eject Value	Print: Eject <value>
Setup	Print: Setup <name>
Priority	Print: Priority <Priority Value>
Copies	Print: Copies <number>

1. "User" and "Name" are NFS global system parameters and are not restricted to the print request program. They must be entered by beginning lines with "User:" and "Name:". The print request program will ignore any lines in Defaults.Text that do not begin with "Print:", "User:", or "Name:", since in the Cluster/One system other programs also use Defaults.Text to preset defaults (e.g., "Mail:").

   "User" may be printed out as a logo on the header page of your job (if the System Manager formats the header pages to do so), and is usually a short ID, such as your initials. "Name" may also be printed out on the header page and is usually a longer identification, such as your full name.

2. Full Network pathname or, if a default directory is set, a partial pathname. For example, if /MAIN/USERS is set as the default directory,

   SMITH/A

   can be specified in Defaults.Text and the Request program will understand that /MAIN/USERS/SMITH/A is meant.

3. File server: station address in decimal, or in hexadecimal preceded by "$",

4. Page Title and Identification options must be enclosed in quotes. For no title, include in Defaults.Text:

   ```
   Print: Title ""
   ```

5. Copies must be between 1 and 999.

6. Print server: station address in decimal, or in hexadecimal preceded by "$". Ask System Manager for print server name if one has been assigned.

7. Eject (page length) must be between 0 and 999.

8. Priority must be L, S, H, or O (Low, Standard, High, or Overnight).

Multiple commands can be entered on the same line.

A sample Defaults.Text:

```
  User: Smith
  Name: John Smith's Fiscal Account
 Print: Pathname /MAIN/USERS/SMITH/TEXT
 Print: NFS $FD
 Print: Copies 3 Eject 55
 Print: Server FISCAL
 Print: Printer Lineprinter Priority Low Setup Ledger
 Print: Title "Smith's Accounts"
```

The print request program will read these lines and when the program comes up, the menu will display the specified parameters as defaults:

```
Print Request    Version ___

-->     File(s) to print?

             NFS Pathname: /MAIN/USERS/SMITH/TEXT

              File server: $FD

               Page title: Smith's Accounts

           Identification:

        Number of Copies: 3
            Print Server: FISCAL
           Printer Model: LINEPRINTER
          Eject (0=none): 55
                   Setup: LEDGER
      Priority (L/S/H/O): LOW
```

The Request program will always read the Defaults.Text that is located on the shared library volume on Drive 5. This file contains the defaults that have been set by your System Manager. Any defaults set in your own Defaults.Text, however, will take precedence over the shared Defaults file. Any default values missing from your file will be supplied, if present, from the shared file.

When your job is printed, a "header" page is printed in front of it, listing information specified by the System Manager. This information may include a logo representing your "user" value, the name of the file printed, its NFS pathname, and various other information.

3.6 Printing Pascal Files on a Local Printer

The Print program is not designed for use with local printers. To print a file at your workstation, use the Pascal Filer and its Transfer function.

Chapter 4

System Operation

4.0 Introduction

The Network Print Server system (Nestar product number A-2803) is designed to provide spooling and print services for all Cluster/One Model A user stations. Network File Server Version 1.2 is required. The Print Server consists of a set of programs and textfiles (summarized in the table on page 4-15). Print Server software facilities are provided for both Pascal and DOS user station environments.

The following chapters:

1. Outline system operation (Section 4.0)
2. Demonstrate how the system works (Sections 4.1-4.4)
3. Discuss how to install and configure the system, using system textfiles and codefiles (Chapter 5)
4. Explain how to maintain the system, by editing textfiles to reconfigure system parameters, and by monitoring the print request queues (Chapter 6).

In the Print Server system, users at their stations create print request files on file-server disks, using DOS and Pascal print request programs. Stations dedicated as printer servers read these request files and cause the desired files to be printed out on printers that they control.

Every printer on the network must be controlled by a network server station; one server can control multiple printers, but only one job can be printed at a time via one print server. Multiple print servers are required to print multiple jobs simultaneously.

Print server workstations must have 48K RAM, a Pascal language card, and an A-2701 network interface card. Print server stations can be used to control as many printers as they have slots available for printer controller cards and can also function as network user stations when not required for print server duties.

Print servers can access multiple file servers on one network, and can be connected to more than one network at a time via Network interface cards in different slots. Combinations of up to 6 printers and 6 networks may be used. However, the total of printers and networks may not exceed 7, and available power and cooling with the Apple will require the use of fans and external power supplies for some configurations.

System installation and configuration are discussed in Chapter 5. Ongoing system maintenance is discussed in Chapter 6. Chapter 4 outlines system operation, providing a general introduction that will help clarify installation, configuration, and maintenance.

FIGURE 2
A-2803 Operation

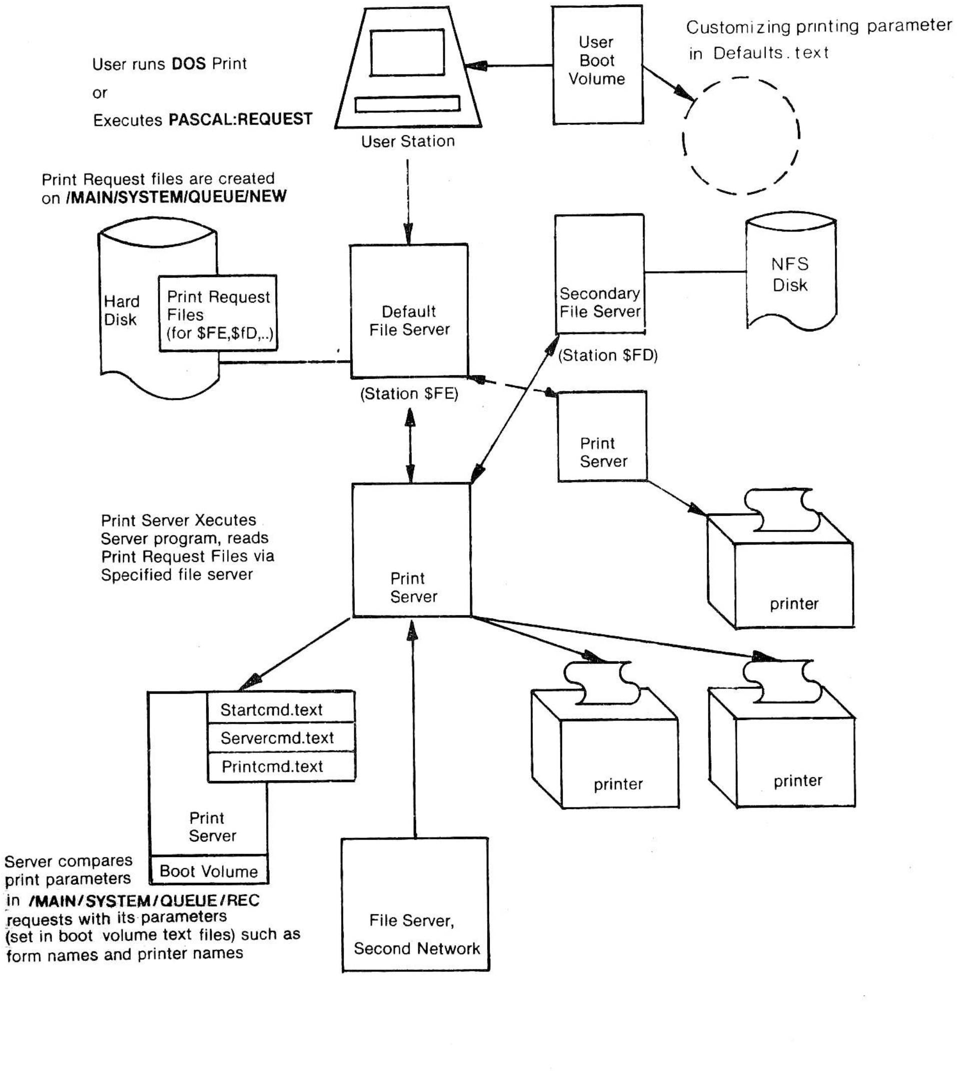
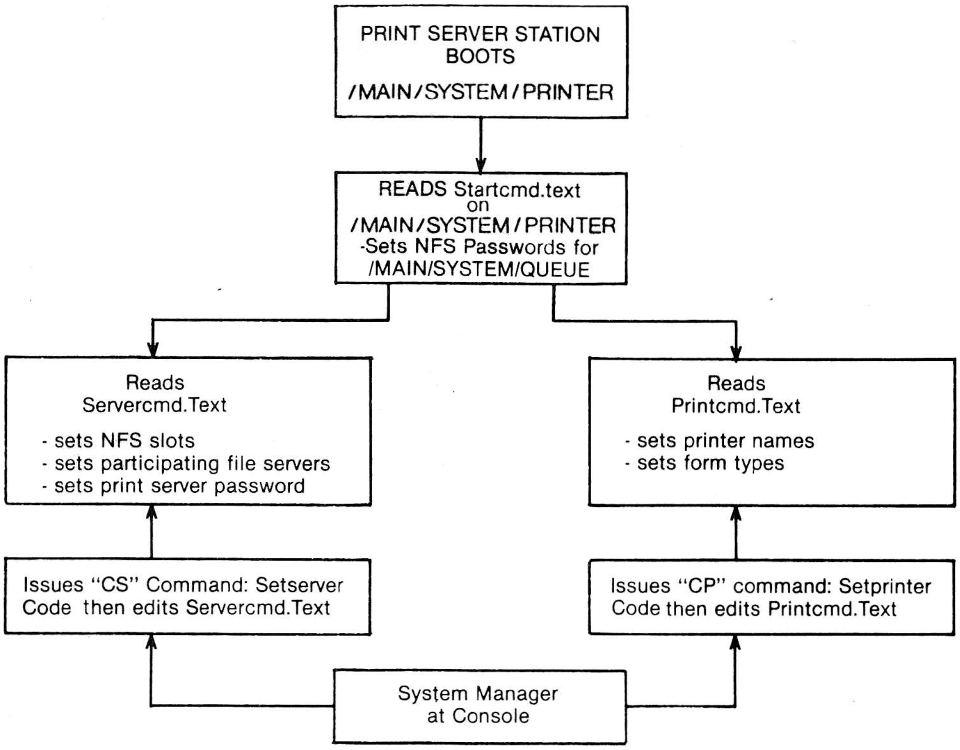

User runs **DOS** Print
or
Executes **PASCAL:REQUEST**
User Station
User Boot Volume
Customizing printing parameter in Defaults.text
Print Request files are created on **/MAIN/SYSTEM/QUEUE/NEW**
Hard Disk
Print Request Files (for $FE,$fD,..)
Default File Server
(Station $FE)
Secondary File Server
(Station $FD)
NFS Disk
Print Server
printer
Print Server Xecutes Server program, reads Print Request Files via Specified file server
Print Server
Startcmd.text
Servercmd.text
Printcmd.text
Print Server
Boot Volume
printer
printer
Server compares print parameters in **/MAIN/SYSTEM/QUEUE/REC** requests with its parameters (set in boot volume text files) such as form names and printer names
File Server, Second Network

FIGURE 3


PRINT SERVER STATION BOOTS
/MAIN/SYSTEM/PRINTER
READS Startcmd.text on /MAIN/SYSTEM/PRINTER
-Sets NFS Passwords for /MAIN/SYSTEM/QUEUE
Reads Servercmd.Text
- sets NFS slots
- sets participating file servers
- sets print server password
Reads Printcmd.Text
- sets printer names
- sets form types
Issues "CS" Command: Setserver Code then edits Servercmd.Text
Issues "CP" command: Setprinter Code then edits Printcmd.Text
System Manager at Console

System operation is illustrated in Figures 2 and 3. The following paragraphs describe the figures in some detail. All material presented, however, is reiterated and elaborated upon in the chapters to follow.

1. Users execute the DOS PRINT, Pascal PRINT, and Pascal REQUEST programs from the DOS and Pascal environments (Fig. 2). The PRINT programs create Network Files that are in the Network directory /MAIN/SYSTEM/QUEUE/NEW on the workstation's current default file server. The print-request files created contain the names of Pascal and DOS files to be printed, together with various scheduling and formatting options that users may specify for the printing job.

   (All Network files beginning with the pathname /MAIN/SYSTEM/QUEUE and used by the print server system are created by the print request program or by the print server programs the first time that the programs are run, or in advance by the System Manager.)

2. In the Pascal environment, users execute Pascal:Request, which displays a menu of print server commands (that will print a file, kill a previous request, show status of print queue, etc.). The user can bypass this menu and enter a print request directly by X(ecuting) Pascal:Print. DOS users RUN PRINT.

3. User printing options (such as number of copies, printer to be used, etc.) can be specified at the time the print request is made, or can be preset.

   In the Pascal environment default options are included in Defaults.Text on the user's boot volume. The print program reads this textfile for defaults at startup. Any defaults not specified in a user Defaults.Text are taken by the Print program from a Defaults.Text on the shared library volume "Pascal:" on drive #5. If, for example, a user presents only the "copies" option in her Defaults.Text, the rest of the option defaults will be set from the system defaults on the shared "Pascal:" volume.

   In the DOS PRINT program, defaults are set at line 50000 of the (Applesoft BASIC) program.

4. The program SERVER is executed automatically at the workstation dedicated as a print server when the workstation boots /MAIN/SYSTEM/PRINTER. In the case of multiple print-server workstations, each server boots its own individual boot volume; e.g., /MAIN/SYSTEM/PRINTERA, /MAIN/SYSTEM/PRINTERB, etc.

5. The program SERVER, running on print server workstations, checks for new files in /MAIN/SYSTEM/QUEUE/NEW on each file server that it serves, on each network that it serves. SERVER reads new request files when they are found, moves them to /MAIN/SYSTEM/QUEUE/REC, includes them in the volume /MAIN/SYSTEM/QUEUE/MASTER (one request per block), and transfers control to the program DRVPRINT, which prints any DOS or Pascal files specified on the correct printer. SERVER then removes the request file names from /MAIN/SYSTEM/QUEUE/REC.

   Some requests remain waiting in queue because some print system parameters that they specify are not currently available. For example, the wrong form may be in the printer or the user may have made a mistake in entering the print request. Such requests remain in /MAIN/SYSTEM/QUEUE/REC, and are also listed in /MAIN/SYSTEM/MASTER. The print request commands "S" (Display requests) and "D" (Display queues), available from the Pascal Request program, use /MAIN/SYSTEM/MASTER to display waiting and skipped requests for users and for the System Manager. The "D" and "S" commands are implemented by Showqueue.Code and Showentry.Code on the Pascal shared library volume.

6. Parameters such as printer names and setup types, and file server addresses, are set by SERVER from values found in Servercmd.Text and Printcmd.Text on the print server′s boot volume /MAIN/SYSTEM/PRINTER (Fig. 3). The SERVER program reads Servercmd.Text and Printcmd.Text each time that it is executed, and uses the names set there to identify printers, the paper or forms they use, other details of printer setup, and the names of the Server boot volume header files that contain title page formats for the printers.

   Multiple printers and file servers (once physically configured), can be "attached" and "detached" using values set and changed in these files.

   The System Manager configures (edits) Servercmd.Text and Printcmd.Text when the print system is installed.

7. All default parameters for the print system set by Servercmd.Text and Printcmd.Text can be changed from within the Server program (that is, at the print server console), using the "CS" (Configure Server) and "CP" (Configure Printer) commands. The CS and CP commands, typed in from the Server menu, cause the programs Setserver.Code and Setprinter.Code on the print server boot volume to be executed.

8. The CS and CP commands use the programs Setserver.Code and Setprinter.Code to change the system parameters listed in Servercmd.Text and Printcmd.Text, editing the textfiles themselves. The new parameters set will remain in effect when the print server is next booted.

   These Server textfiles can also be edited using the Pascal Editor.

9. Textfiles are also used to set header formats for

print jobs, and to set the format of the Pascal users' server command menu and the prompts displayed on users' screens in response to "Help" commands.

These textfiles, listed in the Table on page 4-3, can be edited using the Pascal Editor.

10. The System Manager is responsible for customizing and maintaining the system textfiles. This responsibility includes setting various system parameters and defaults, cleaning out the queue files, and reconfiguring (editing) the textfiles as needed, to allow waiting jobs to be printed. These tasks are discussed in Chapters 5 and 6.

The following manual sections discuss the print server code files and the textfiles that they use in greater detail. Sections 4.1 - 4.4 discuss everyday startup and operation of the system, and the information that appears on the screen of the print server station when the system is functioning.

4.1 Executing the Server Program

All dedicated print server workstations boot from volumes identical to /MAIN/SYSTEM/PRINTER (but with volume names unique to the individual workstation; e.g., /PRINTERA, /PRINTERB,...) and mounts them READ/WRITE UPDATE.

When a print server station boots its /MAIN/SYSTEM/PRINTER volume, the volume's startcmd file is read and any passwords necessary are set (/SERVER passwords are discussed below in Sections 4.1.3. and 5.2.1); then, the Server program on that volume is chained to and executed.

The Server program checks for new print requests once a minute on network default file server /MAIN disks, and fulfills any requests that are found, if the request's print parameters match those set by the System Manager.

The following sections discuss this process in detail. Configuring the system (defining, setting, and changing system parameters, such as Printer and Setup names), is discussed in Chapters 5 and 6.

4.1.1 Automatic Startup Using Setprofile

Use Pascal:Setprofile to change print server station profiles if print servers are to boot their /MAIN/SYSTEM/PRINTER volume automatically at power on. (The online utility program Setprofile is discussed in Sections

8.2.1 and 8.3.1 of the NFS User's Manual, Publication Number LC20-0101)

4.1.2 The Server Program's Startup Commands.

Bootable NFS volumes such as /MAIN/SYSTEM/PRINTER may contain a textfile of "startup" commands. These are commands that are read and executed automatically by the system whenever the volume is booted. The textfile is named "Startcmd.Text and is explained in detail in Section 8.2.2 of the NFS Users Manual.

The only startup command required in the /MAIN/SYSTEMS/PRINTER Startcmd.Text (unless passwords are set) is one that will cause the SERVER program to be executed, by chaining to it.

When /MAIN/SYSTEM/PRINTER is booted then, the volume's Startcmd.Text is read. Startcmd chains to Server.Code, so that the Server program is executed automatically when the volume is booted.

The Startcmd file serves one other purpose: if a Network password has been set on the print request files and master list of requests residing within /MAIN/SYSTEM/QUEUE, the Startcmd file provides that password, so that the Server program can read request files listed in the directory /MAIN/SYSTEM/QUEUE/NEW and change their pathnames, moving them to /MAIN/SYSTEM/QUEUE/REC, and recording them in the volume /MAIN/SYSTEM/QUEUE/MASTER.

If no passwords have been set on the /MAIN/SYSTEM/QUEUE files and directories, the Startcmd.Text format is simply

```
; Comment lines
CHAIN SERVER
```

or

```
; Comment lines
CHAIN SERVER, INITCHECK
```

At startup, all Server parameters are automatically reset to those listed in Servercmd.Text and Printcmd.Text. The Server program then begins operation, checking for any new print requests.

"INITCHECK" is a parameter that can be sent to the Server program from Startcmd.Text to cause the program to recheck all print requests that have been queued previously and that are awaiting some change in system parameters to be acted upon. These waiting requests are rechecked automatically every time that the system is reconfigured online from the print server console (Section 6.1), every time that a "check queues" command is issued online (Section 4.4), and during the "Overnight" time period (Section 5.3.1). It is recommended that INITCHECK be included in Startcmd.Text.

4.1.3 Password Protection on /MAIN/SYSTEM/QUEUE

The usage and access facilities of the Cluster/One network are discussed fully in Chapter 4 of the NFS Users Manual. This manual assumes a general knowledge of the use of passwords to control access to Network files. The use of passwords to protect print request files is discussed in Section 5.2.1 of this manual.

When the Server program checks directory /MAIN/SYSTEM/QUEUE/NEW for new print request files, it renames any new files found, placing them in /MAIN/SYSTEM/QUEUE/REC. In this way, the program differentiates between new, unprocessed requests and those being acted upon or held in the queue pending system-parameter changes. In addition, information on all queued requests is listed in the virtual volume /MAIN/SYSTEM/QUEUE/MASTER.

For this reason, Server must have delete access to /MAIN/SYSTEM/QUEUE/NEW and erase access to the files within it, as well as create and write access to /MAIN/SYSTEM/QUEUE/REC and its files, and to /MAIN/SYSTEM/QUEUE/MASTER, whether or not any passwords may have been set for those directories and files. Passwords set must be placed in Startcmd.Text, for use by the printer program.

If only one file server is to be serviced, the password can be set with a single line:

```
NOECHO NFS SET PRVPW=XYZ
```

If passwords are to be set for more than one file server, NFS slot and station numbers for each file server must be specified before the password is set:

```
NOECHO NFS SET NFS SLOT N STN $nn
NOECHO NFS SET PRVPW=XYZ
```

Here, N=network interface card slots, and $nn=File Server address (hexadecimal). For example,

```
NOECHO ; This is Startcmd.Text...8/81
NOECHO NFS SET NFS SLOT 6 STN $FE
NOECHO NFS SET PRVPW=XYZ
NOECHO NFS SET NFS SLOT 4 STN $FE
NOECHO NFS SET PRVPW=XYZ
NOECHO NFS SET NFS SLOT 6 STN $FD
NOECHO NFS SET PRVPW=XYZ

NOECHO ; NOW START THE PRINT SERVER...
NOECHO CHAIN SERVER,INITCHECK
```

In this example, the print server workstation is connected to two local networks via interface cards in slots 4 and 6, and serves file servers $FD and $FE on the Slot 6 net and file server $FE on the Slot 4 net.

The server boots by default from slot 6, $FE. Password XYZ is set. Startcmd then changes the default channel to slot 4. Password XYZ is set. The default channel is changed back to slot 6 (but to station $FD). Password XYZ is set. The default channel is then returned to the original Slot 6, Station $FE by Server.

The word "NOECHO" at the beginning of each line will supress the screen display of these commands.

Startcmd then chains to Server.Code.

4.2 Server Program Operation

When /MAIN/SYSTEM/PRINTER is booted, and Startcmd.Text chains to Server.Code, the Server program first reads two text files on the /MAIN/SYSTEM/PRINTER boot volume, named Servercmd.Text and Printcmd.Text (discussed in detail in Sections 5.3.1 and 5.3.2). These text files contain information necessary to configure the system, such as printer and file server names and addresses, the setup types currently in the printers, and the numbers of those slots containing NFS interface cards.

Having read these files, Server will connect to any networks/file servers specified in them, and check for print request files.

As Server begins execution, the print server screen will display the standard USCD Pascal greeting, followed by the Printer Server welcome banner and text that tracks the server's startup activity:

```
                  ********************************
                 ***   NETWORK SERVER PROGRAM   ***
                 ***         VERSION ___        ***
                  ********************************

                          COPYRIGHT 1981,
                     NESTAR SYSTEMS, INCORPORATED

                   16:18 CONNECTING TO NFS CENTRAL....

                   16:18 CONNECTING TO NFS SECONDARY....

                   16:18 CONNECTING TO NFS OTHERNET....

     WAITING...[45]
```

In this example, Server.Code has read the files Servercmd.Text and Printcmd.Text on its boot volume, to configure printer and server parameters. In this example these textfiles specify three file servers, on two networks, to be serviced: CENTRAL and SECONDARY on one network, and OTHERNET on another.

Checking the QUEUE files for the CENTRAL and SECONDARY file servers on the boot network, and the OTHERNET file server on a second network, and finding no requests, the print server waits, rechecking the queue directories every 60 seconds.

NOTE: File servers can be given names in the NFS system (using the SETPROFILE.CODE distributed with this system). These names can be used but not changed by the Print Server programs. In the event that the file servers are not named, SERVER will display the station addresses, in hexadecimal; e.g., $FE, $FD, and $FE, instead of "CENTRAL", "SECONDARY", and "OTHERNET". Print Server station names can be assigned by the System Manager. All File Server and Print Server names should be unique.

4.3 Finding and Printing a Request

When the server finds evidence of a new print request (in /MAIN/SYSTEM/QUEUE/NEW), a message such as

```
15:21 CENTRAL PRINT REQ 411 QUEUED
```

will be displayed on the server station screen.

When the user print request programs queue print requests, they also trigger the Server program to examine

/MAIN/SYSTEM/QUEUE/NEW. In the example above, a print request has been queued in the request queue of the file server named CENTRAL. The request is assigned queue number 411 and is moved from the NEW to the REQUEST (REC) category (and in fact, has the pathname /MAIN/SYSTEM/QUEUE/REC/411).

This request will contain

-Name of the file(s) to be printed
-NFS pathname of volume containing the file(s)
-File server for disk containing the file(s)
-Title to be printed at the top of each page of the job
-Number of copies to be printed
-Print server to be used
-Printer to be used
-Page length (eject value)
-Setup to be used
-Priority

When Server.Code is first executed, it reads Servercmd.Text and Printcmd.Text on its boot volume. From these text files is takes the current names and addresses of the file servers online, and of its printers and associated setup types. If the print server specified in the text file is the one reading the request file, if the necessary file server is online, and if the printers and setup parameters in the request match those currently set in Servercmd.Text and Printcmd.Text, a message such as

```
13:21 PRINT: CENTRAL REQUEST 411:
             ACCOUNTING SETUP=STANDARD
             PASCAL /MAIN/USERS/SMITH/A
             File EXAMPLE
```

or

```
13:21 PRINT: SECONDARY REQUEST 511:
             FISCAL SETUP=STANDARD
             SPOOLED OUTPUT
```

will be displayed on the server station screen.

Sections 2.1 and 3.1 discuss how the user specifies the parameters that go into the print request file. Sections 5.3 and 6.1 discuss how parameters such as printer names and setup types are set and changed for the print servers by the System Manager, by creating and changing Servercmd.Text and Printcmd.Text files.

(The times listed in the display above are best used as approximations of the times when requests were made, due to the manipulation of request files by the Server program after they are queued. The exact chronological sequence of queued requests may not be reflected exactly by the times displayed.)

Having matched the job parameters specified in a request file with the system parameters currently set, the Server program calls the program DRVPRINT, also on the boot volume, to print out the specified file(s). In the first example, file EXAMPLE, located on /MAIN/USERS/SMITH/A is to be printed on the printer named "ACCOUNTING", using the setup named "STANDARD". As the job is begun, the message

```
PRINTING...HEADER PAGE FOR SMITH
```

will appear.

In the second example, "SPOOLED OUTPUT" is to be printed. "Spooled output" is text that actually resides within a request file. That is, instead of containing the name of a file to be printed, the request file actually contains the text to be printed. Various application programs, such as Nestar's Messenger Electronic Mail System, queue text to be printed by including it in print request files. (The subject of spooled output is not dealt with further in this manual).

Note: When multiple print servers are present, a server will occasionally display a

```
CAN'T MOUNT VOLUME
31, IN USE
```

error message, or a "WAITING FOR QUEUE LOCK" message. This happens when two print servers attempt to access /MAIN/SYSTEM/QUEUE files simultaneously, or when a user is creating a new request just as a print server is reading the /MAIN/SYSTEM/QUEUE/NEW request files. Such "errors" are transient and may be disregarded.

4.3.1 Printing the Header Page

A header page is printed for each job. The format of the header page is taken from one of the header textfiles located on the Server boot volume (discussed in Section 5.5). If different printers are to print different headers, textfiles for each different header must be present on the boot volume.

The Server program will print a user logo on the header page if configured to do so. This logo consists of the "user" value set in the user's Defaults.Text, or the user's station number (in hexadecimal). The formatting information that governs the shape of this logo is placed in the header file(s) and is implemented by BLOCK.CHARSET on the server's boot volume. User logos and BLOCK.CHARSET are discussed in detail in Sections 5.5 and 5.6.

4.3.2 Printing the Body of the File

After the header page for the job has been printed, Server tracks the progress of the job by displaying the page and line currently being printed:

```
PRINTING...       PAGE    3,       LINE     4
```

If any key is pressed on the server's keyboard while the job is being printed, the line of options

```
C(ONTINUE) R(ESTART) K(ILL) D(EFER)
```

will appear. The printer will stop and wait for "C", "R", "K", or "D" to be entered.

Pressing "C" (or <Return>) will cause the job to continue printing.

Pressing "R" will cause the print server to immediately restart the job, printing it from the beginning.

Pressing "K" will stop the current job and cause the print request for it to be removed permanently from the print queue.

Pressing "D" will stop printing the job, leave it in the queue, and recheck the queue. The oldest/highest priority job in the queue (which may be the job just deferred) will then be printed.

If a console password has been set (Section 5.3), the Server program will prompt for it before displaying this line of options:

```
ENTER PASSWORD?
```

If an incorrect password is provided, the program will display

```
ILLEGAL PASSWORD
```

and return to the job it was printing.

Queued requests that specify printing parameters other than those currently set in Servercmd.Text and Printcmd.Text are skipped:

```
13:19 PRINT: CENTRAL REQUEST 411:
             NOTE: NEEDS FISCAL FORMS STANDARD
```

Here, a request is waiting because it specifies that the printer named "FISCAL" be used, and no such printer is currently on line (or currently named "FISCAL").

As described in Section 6.3, the System Manager will use the "S" (Display status of previous requests), "D (Display status of print queue) and "K" (Kill entry) commands (parts of the Pascal:Request program), to check these skipped requests, changing system parameters to permit their printing, or killing them to clear the print queue when appropriate.

4.4 The SERVER Menu: Commands Available in the Server Program

Pressing the space bar while the Server program is waiting for requests or searching the request queues causes a menu to be displayed:

```
PRINT SERVER COMMANDS ARE:

 F  =  NFS COMMAND
 P  =  QUEUE A FILE FOR PRINT
CS  =  CONFIGURE SERVER
CP  =  CONFIGURE PRINTER
 I  =  SERVER INFO
CH  =  CHECK QUEUES
 Q  =  QUIT
COMMAND?
```

Again, if a password has been set for the console, the Server program will prompt for it before displaying this menu, and return to waiting mode if the correct password is not provided.

Pressing <Return> when the menu is displayed causes Server to resume its wait for requests. Typing one of the letters in the menu causes a Server command to be executed. These commands are discussed in detail in Chapter 6 (Maintaining the System). Commands to display print queue and print request status, and to kill print requests waiting in queue, are available in the Pascal:Request program discussed in Chapter 3.

Table 1

Text and Code Files Used in the A-2803 System

File	Section	Use
On /MAIN/SYSTEM/PRINTER (for one server; more volumes as needed)		
Startcmd.Text	4.1.2	Sets passwords. Chains to Server.Code
Server.Code	4.2	Print server operating program
Drvprint.Code	-	Transfers files to printers
Servercmd.Text	5.3.1	Sets system server parameters
Printcmd.Text	5.3.2	Sets printer parameters
Setserver.Code	6.1.1	Changes parameters in Servercmd.Text
Setprinter.Code	6.1.2	Changes parameters in Printcmd.Text
Header Textfiles	5.5	Header formats for title pages
Block.Charset	5.6	Logo formats for title pages
On /MAIN/SYSTEM/QUEUE/NEW (directory), /REC (directory), and /MASTER (for each file server)		
User Req Textfiles	5.2	Created by PRINT (/NEW) Read and listed in /MASTER renamed by SERVER (/REC)
On Shared System Pascal Volumes		
Request.Code	3.1	Pascal user servercmd program
Print.Code	3.1	Pascal user print request program
Killentry.Code	3.4	Kill A queued print request
Showentry.Code	3.4	Display job request information
Showqueue.Code	3.4	Display current print queue
Defaults.Text	3.5	Sets system print defaults
Requestcmd.Text	5.7	Server menu format and commands
Requesthlp.Text	5.7	"Help" text
On shared System DOS Volumes		
PRINT	2.1	User request print program
User Boot Volumes (PASCAL)		
Defaults.Text	3.5	Sets Pascal:Request defaults
User Boot Volumes (DOS)		
PRINT	2.5	PRINT with individualized defaults
On /MAIN/SYSTEM/PROFILE		
Profile Texts	5.4	Sets name for user and server stations

Chapter 5

Installing and Configuring the System

5.0 System Manager Overview

Installation of the print system is described in the following sections. Briefly, installation consists of:

1. Transferring print server textfiles and codefiles to the appropriate NFS volumes from Nestar distribution minifloppies, creating new volumes and textfiles as necessary. (Sections 5.2, 5.3)

2. Protecting appropriate print system textfiles and directories by setting NFS passwords to control access and usage. (Section 5.2.1)

3. Editing installed system textfiles in order to configure the system. (Sections 5.4-5.7)

4. Editing system textfiles to specify formats for print-job header pages, and to format the server command menu and "help" prompts that will appear on the user's screen.

Once the print server system is installed, its configuration and ongoing maintenance will be the responsibility of the System Manager. Configuration and maintenance tasks include

1. Physical operation and maintenance of printer and print server workstations (not discussed in this manual).

2. Editing system textfiles on /MAIN/SYSTEM/PRINTER and shared library volumes. The format of these textfiles, and their use, are discussed in detail in this chapter. Methods of editing them for purposes of system maintenance are discussed in Chapter 6.

3. Reconfiguring the system to print waiting requests, kill incorrect requests, clean out the queue files, and "attach" and "detach" printers and file servers that have been physically configured into the system. (Section 6.3)

5.1 Print System Installation: Introduction

Every printer on the network must be controlled by a network server station; one server can control multiple printers.

Print servers print only one job at a time. Multiple print servers are required to print multiple files simultaneously.

Print server workstations must have 48K RAM, a Pascal language card, and an A-2701 network interface card. Print server stations can be used to control as many printers as they have slots available for printer controller cards, and can also function as network user stations when not required for print server duties. Network File Server Version 1.2 is required.

Print servers can access multiple file servers on one network, and can be connected to more than one network at a time via Network interface cards in different slots. Combinations of up to 6 printers and 6 networks may be used. The total of printers and networks may not exceed 7.

5.2 Software Installation

To begin the installation, you must locally connect a minifloppy drive to your user station. Insert the controller card in slot 4, with the network interface cable plugged in for drive 1.

A-2803 codefiles and default textfiles are shipped on three 5.25-inch floppy disks labeled "System", "User", and "DOS". Since NFS file-transfer utility programs cannot be used with minifloppy diskettes, use a local minidisk drive at a user station to transfer the "System" and "User" Pascal files to Pascal volumes on your main system disk.

The "DOS" distribution diskette is a DOS 3.3 diskette. To put the DOS PRINT program on both virtual volumes DOS 3.3 and DOS 3.2.1:

a. Boot virtual DOS 3.3 volume
b. Mount virtual DOS 3.2.1 volume on D2,RW
c. LOAD PRINT from real diskette
d. Save PRINT on D1 and D2

Installation when multiple file servers and multiple networks are present is discussed in Section 5.2.2.

Install system software as follows:

1. Create /MAIN/SYSTEM/PRINTER (or /PRINTERA, /PRINTERB,..., if more than one print server will be booting a server volume). Size = 560 sectors; Type = Pascal:

```
CREATE /MAIN/SYSTEM/PRINTER,SIZE=560.S,T=P
```

If the print server is connected to multiple networks, /MAIN/SYSTEM/PRINTER should be created on the fileserver/network to be booted from (or on a file server on each network, to boot from either network).

2. Zero /PRINTER using the Pascal Filer: Mount the created volume Read/Write and exit the CMD program. Enter the Pascal Filer and press "Z". When asked what volume to Zero, enter the drive number on which the volume is mounted. Answer "no" to the prompt about duplicate directories, and when prompted, enter the size and Pascal name (e.g., "PRINT") of the volume.

3. Locate the distribution files as indicated in the following chart.

SOFTWARE Installation Chart

File	----------->	Transfer to NFS Volume
"System" diskette		
Server.Code		/MAIN/SYSTEM/PRINTER (create volume first)
Startcmd.Text		
Drvprint.Code		
Setserver.Code		
Setprinter.Code		
Servercmd.Text		
Printcmd.Text		
Headers.Text		
Block.Charset		
"User" diskette		
Request.Code		/MAIN/PASCAL/LIB (shared Pascal disk)
Print.Code		
Killentry.Code		
Showqueue.Code		
Showentry.Code		
Defaults.Text		
Requestcmd.Text		
Requesthlp.Text		
"DOS" diskette		
PRINT		/MAIN/DOS/3.3 /MAIN/DOS/3.2.1 (shared DOS disks)

4. Edit the installed textfiles, as described in Sections 5.3-5.7.

5. Protect the /MAIN/SYSTEM/QUEUE files and /MAIN/SYSTEM/QUEUE/MASTER volume, as described in the following section.

   This is done after the /MAIN/SYSTEM/QUEUE directories are created. The Server program (or Pascal:Request program), when first executed, will create the /MAIN/SYSTEM/QUEUE directories, or the System Manager may create them in advance, using the NFS CREATE command (as shown in the next section, with passwords).

5.2.1 Access and Usage: Protecting /MAIN/SYSTEM/QUEUE

When Server.Code is first executed, it will create the directories

```
/MAIN/SYSTEM/QUEUE
/MAIN/SYSTEM/QUEUE/NEW
/MAIN/SYSTEM/QUEUE/REC
```

and the virtual volume

```
/MAIN/SYSTEM/QUEUE/MASTER
```

It is a good idea to protect the volume /MAIN/SYSTEM/MASTER and the print requests listed in the /MAIN/SYSTEM/QUEUE directories by setting NFS passwords. The system default is no protection.

Cluster/One file protection facilities are discussed in detail in Chapter 4 of the NFS User's Manual (Publicaton No. LC20-0101). Briefly, the System Manager can prevent access to the /MAIN/SYSTEM/QUEUE files by setting passwords in the file pathnames and limiting public and group access rights to the files. This is accomplished by issuing NFS PROTECT commands from the Pascal:CMD program:

```
CREATE /MAIN/SYSTEM/QUEUE, T=Y
PROTECT /MAIN/SYSTEM/QUEUE, PUBACC=R, GRPACC=R,
   PRVACC=RWECD, PRVPW=XYZ

CREATE /MAIN/SYSTEM/QUEUE/NEW, T=Y
PROTECT /MAIN/SYSTEM/QUEUE/NEW, PUBACC=C, GRPACC=C,
   PRVACC=RWECD, PRVPW=XYZ

CREATE /MAIN/SYSTEM/QUEUE/REC, T=Y
PROTECT /MAIN/SYSTEM/QUEUE/REC, PUBACC=, GRPACC=,
   PRVACC=RWECD, PRVPW=XYZ
```

```
CREATE /MAIN/SYSTEM/QUEUE/MASTER, T=P, SIZE=200.B
PROTECT /MAIN/SYSTEM/QUEUE/MASTER, PUBACC=R,
   GRPACC=R, PRVACC=RWECD, PRVPW=XYZ
```

Use passwords unique to your installation in place of the "XYZ" shown above. Type the "CREATE" and "PROTECT" commands on one line, not broken as shown above.

These commands provide the following access, which must be present for the system to function:

1. Public and group CREATE access to the /MAIN/SYSTEM/QUEUE/NEW files; private CREATE/ERASE/READ/WRITE/DELETE access for the /MAIN/SYSTEM/QUEUE/NEW files.

2. No public or group access to the /MAIN/SYSTEM/QUEUE/REC files; private RWECD access.

3. Public and group READ access to the /MAIN/SYSTEM/QUEUE; private RWECD access. (The system will create a /MAIN/SYSTEM/QUEUE/MASTER volume of 200 Blocks, if no volume exists. If the System Manager creates the volume, it can be made any convenient size: the volume keeps a record of active, waiting, and completed requests, about one request per block. The default /MAIN/SYSTEM/QUEUE/MASTER volume will keep a record of the 194 most recent print requests-waiting, active, or completed.)

Note: Passwords are set by Startcmd.Text each time that the Server volume is booted. See Section 4.1.3 for details on how to enter passwords into the Startcmd file.

5.2.2 File Installation When Multiple Networks/File Servers Are Present

Use of the print system with multiple file servers and multiple networks is straightforward. However, the System Manager should give some thought to the matter, and only hands-on experience at the individual installation will show how the system files must be situated on network disks for greatest convenience.

A number of points can be made at the outset:

1. The Server textfiles and codefiles need reside on only one network.
2. The User files must be available on a shared library

volume for every default file server that is part of the print system.

3. The System Manager will have occasion to use some (or all) of the Pascal user programs: to show the current print queues (the Showqueue code), to display information about specific requests (the Showentry code), and to remove entries from the queue files (the Killentry code, which will only kill requests made at the same workstation).
4. A print server will print only one job at a time. For simultaneous output, multiple print servers must be present.

If the System Manager wishes to use these programs at a print server console, bootable /MAIN/SYSTEM/PRINTER volumes must exist on each network, because request files can be manipulated from the print server console only on the server's current default network and file server, using code files present on that network.

Using multiple slot/multiple file server channels is discussed in Chapter 7 of the NFS User's Manual.

5.3 Setting System Parameters

Every printer on the network must be controlled by a network server station; one server can control multiple printers. Each printer is defined for the Server program by

1. Slot numbers of Network interface cards in the print server, and file server addresses (and names)
2. Print server station number
3. Print server name (optional)
4. Printer controller card slot
5. Printer name
6. Setup name
7. Header textfile name

These parameters are present in order to allow system users to attach and serve multiple networks, file servers, print servers, and printers, while still defining each uniquely. Further, multiple parameters allow a single printer to perform multiple printing tasks via the redefinition of its identifying parameters.

The System Manager defines these system parameters by listing them in textfiles on the print server boot volume (except for Print Server name, which is set using Setprofile, discussed in Section 5.4). In the following sections, these textfiles are discussed in detail, together with the information that they should contain, how that information should be formatted, how the information is originally placed in the files, and how it can later be changed.

These textfiles can be edited using the Pascal editor, or changed from the Server program using the "CP" and "CS" menu items (discussed in Section 6.1).

The textfiles to be edited, in order to configure the system:

Textfile	Section	Purpose
Servercmd.Text	5.3.1	Sets server parameters such as Server console password, NFS slots, file server addresses, and overnight hours.
Printcmd.Text	5.3.2	Sets printer parameters such as setup names, forms width, printer names, and header file names.
Header Files	5.5	File specified in Printcmd.Text include formats for header pages to be printed before print jobs.
Block.Charset	5.6	Sets size and shape of user logo optionally printed on header pages. (Cannot be edited.)
Requestcmd.Text	5.7.1	Sets format for users' server command menu displayed by the Pascal Request program, and available commands.
Requesthlp.Text	5.7.2	Sets format of responses to user requests for help.

5.3.1 Setting Server Parameters: Servercmd.Text

The Server program uses the Servercmd.Text file on its boot volume to set a number of system parameters:

1. The name of the Server program itself.
2. The name of the codefile (DRVPRINT.CODE) that the Server program will call to fill PRINT commands found in queued request files.

3. The names of console commands available to the System Manager in the Server program (used at the print server console when the Server program is running); the prompts for those commands; the system programs called by those commands.
4. The hours for "Overnight" print jobs.
5. Network interface card slot numbers and file server stations to be checked for print requests.
6. Print server console password.

The format for Servercmd.Text is

```
1)  ;Comment lines
2)  PROGRAM <Server Program name>
3)  REQUEST <print>  PROGRAM <program name>
4)  COMMAND <name> PROGRAM <volume:filename> PROMPT N=<name>
5)  NIGHT <nl, n2>
6)  NFS SLOT=<n>, STATION=<$nn>
7)  PASSWORD <XYZ>
```

(Reference numbers to the left are not part of the file)

To explain the format:

1) ";" in column 1 indicates a comment line.

2) The line "PROGRAM <Server program name>" simply names the program that the printer server is using:

```
PROGRAM SERVER
```

3) Print commands to be found in the user print request files ("REQUEST PRINT") must be related to the program that Server will call to service the command (Drvprint Code):

```
REQUEST PRINT   PROGRAM DRVPRINT
```

4) The lines beginning "COMMAND" format the Server menu of console commands and define the programs that can be executed by the system manager from the console by selecting the appropriate item from the menu (see sample file below).

   For example, typing "F" from the Server menu (shown on page 4-14) causes the NFS CMD program to be loaded at the print server station, allowing the System Manager to enter NFS commands before returning to the server program. The Servercmd line would read:

```
COMMAND NFS PROGRAM PASCAL:CMD PROMPT F=NFS COMMAND
```

"Programs" preceded by an ampersand, "&", reference routines internal to the Server program:

```
COMMAND INFO PROGRAM &INFO PROMPT I=SERVER INFO
```

The console commands, prompts, and referenced programs and routines are shown in the example textfile below, and programs are discussed in more detail in the following section.

5) "NIGHT" defines the hours during which "Overnight" priority is in effect (on a 24 hour clock). The Overnight priority is useful only if a clock/calendar card is present.

   If no clock/calendar card is present, the value 0 is returned when a timecheck is done. For this reason, the "NIGHT" value in Servercmd.Text must encompass 0 if user jobs are (mistakenly) queued with the "Overnight" priority specified.

   The system default is <0,6>, so that if no clock/calendar is present, user jobs with Overnight priority will be printed when they are received.

6) Lines begining with "NFS" define the print server slots containing NFS interface cards, and the addresses of the network file servers on those networks that are to be checked for print requests. In the example below, the print server is connected to two networks via interface cards in slots 4 and 6. The server will check for print requests on the file server with hexadecimal address FE on the slot 6 network and the file servers with hexadecimal addresses FE and FD on the slot 4 network. Any number of file servers can be listed here.

   Increase or decrease file servers to be checked by adding or subtracting "NFS" lines using the Pascal editor (or the "CS" console command, discussed in Section 6.1.2).

   Although file servers can and should have unique names, in addition to their addresses, file server names are set using Setprofile.Code, not by the print server programs, and are not referenced in Servercmd.Text.

7) A password can be set in Servercmd.Text that will limit access to the print server command menu. The format is

```
PASSWORD XYZ
```

The print server command menu is displayed wherever the Server program is in "Waiting" mode and the spacebar is pressed. With a password set, the prompt

```
ENTER PASSWORD?
```

appears. If an incorrect password is entered, the message

```
ILLEGAL PASSWORD
```

is displayed and the program returns to "Waiting" mode.

The password must also be given in order to stop a printing job in progress, to display the line

```
C(ontinue), R(estart), K(ill), Q(uit)?
```

Servercmd.Text can be edited like any other Pascal text file. However, from within the Server program, changes to it are most easily accomplished using the CONFIGURE SERVER command from the Server menu (see Section 6.1.2).

A sample Servercmd.Text:

```
; LAST MODIFIED: WED 07-Oct-1981 11:14:05
; THIS IS SERVERCMD.TEXT...  8/81
PROGRAM SERVER

REQUEST PRINT    PROGRAM DRVPRINT

COMMAND N       PROGRAM PASCAL:CMD    PROMPT F =Nfs command
COMMAND PRINT   PROGRAM PASCAL:PRINT  PROMPT P =Queue a file
COMMAND CS      PROGRAM SETSERVER     PROMPT CS=Configure svr.
COMMAND CP      PROGRAM SETPRINTER    PROMPT CP=Configure prtr.
COMMAND INFO    PROGRAM &INFO         PROMPT I =Server info
COMMAND CHECK   PROGRAM &CHECK        PROMPT CH=Check queues
COMMAND QUIT    PROGRAM &QUIT         PROMPT Q =Quit

;*** Set console pasword if desired ***
PASSWORD XYZ

NIGHT 0,6
NFS    SLOT=6, STATION=$FE
NFS    SLOT=4, STATION=$FE
NFS    SLOT=4, STATION=$FD
```

5.3.2 Setting Printer Parameters; Printcmd.Text

Printcmd.Text is located on the print server's boot volume and is used by the server program to set the following printer parameters:

1. Printer names (one word each)
2. Printer controller card slot number in server station
3. Setup names
4. Printer width (# of columns)
5. Header textfile names (header textfiles contain the formats of the headers to be printed by a printer before each job).
6. BLOCK.CHARSET reference (CHARSET prints a user logo on the header page if the header file references it).

Printcmd.Text has the following form:

```
; Comment line
CHARSET *:BLOCK.CHARSET
PRINTER <name> SLOT=<n> SETUP=<name> WIDTH=<nnn> HEADER <name>
```

Reference numbers to the left are not part of the file.

1) ";" signifies a comment line.

2) CHARSET is the file on the boot volume that contains the format information for the user logo printed on the header pages (Section 5.6).

3) The PRINTER line sets printer name, printer contol card slot number, setup name, and the name of the textfile containing the specific header format each printer that the server station serves:

   1. The word "PRINTER" is followed by the name chosen for the printer. In the example below, two printers are served and are named MARKETING and LINEPRINTER. Printer names must be one word.

   2. "SLOT=" is followed by the slot number in which the printer controller card is installed in the server station. The printer controlled by the card in this slot is given the name preceding it on the same text line.

   3. The word "SETUP=" is followed by the name chosen for

the form currently installed in a printer. In the example below, one printer has the setup that the System Manager has defined as STANDARD for the system. The other printer has CHECKS installed.

4. Printer "WIDTH=" is a number between 0 and 200 that indicates how many columns are in a print line for this printer. If a text line greater than the printer width value is to be printed, the line will be truncated at the width set and the remainder of the line will be printed on the following line.

   WIDTH=0 disables this feature, and textlines are printed as found, regardless of width. Text processing programs include a variety of control characters in textlines (to right-justify the text, for example, and to back-space for underlining). All such characters are counted when line width is calculated by the print server program. For this reason, some textlines in processed textfiles may be truncated by the print server program incorrectly unless WIDTH=0 is used.

   If a particular printer at your installation is completely dedicated to printing word processed output, set the printer WIDTH parameter for the printer to 0, so that no length checking will be done on the text lines being printed.

   If a printer is never used for word processed output, a reasonable number should be selected for the printer WIDTH parameter (80 or 132 is usually adequate).

   If one printer will be used to print both types of output, configure 2 printer entries so that both involve the same printer name and slot but have different values for SETUP and printer WIDTH. For example,

   ```
   PRINTER DAISY SLOT=2 SETUP=STD WIDTH=80 HEADER STD
   ```

   and

   ```
   PRINTER DAISY SLOT=2 SETUP=WP WIDTH=0 HEADER WP
   ```

   Both configurations can be attached simultaneously.

   Default printer WIDTH value is 0.

5. The word "HEADER" is followed by the name given to the textfile on the boot volume that contains the

format for the first ("header") page printed out by the printer when it begins a new job (see Section 5.4).

A sample Printcmd.Text:

```
; THIS IS PRINTCMD.TEXT... 12/81
CHARSET *:BLOCK.CHARSET

PRINTER R&D SLOT=1 SETUP=STANDARD HEADER R&DHDR
PRINTER LINEPRINTER SLOT=2 SETUP=CHECKS HEADER LINEHDR
```

Here, the "R&D" printer's controller card is installed in slot 1 of the print server station. The "LINEPRINTER" controller card is installed in slot 2.

The "R&D" printer is using the setup defined by the System Manager as STANDARD. If the setup is changed, the System Manager will change SETUP from "STANDARD" to some other name. The LINEPRINTER currently is configured in the setup labeled "CHECKS" by the System Manager.

Each printer, before printing a job, prints out a header page. The formats for these headers are contained, respectively, in the textfiles named "R&DHDR" and "LINEHDR".

Printcmd.Text can be edited like any other Pascal text file. However, from within the Server program, changes to Printcmd.Text are most easily accomplished using the CONFIGURE PRINTER command from the Server menu (see Section 6.1).

5.4 Naming the Print Servers: SETPROFILE.CODE

When making print requests at their stations, users have the option of specifying which print server will service the requests. This print server may be specified by its station number or by its name.

To assign names to the print servers in your system, X(ecute) Setprofile at any workstation.

SETPROFILE will prompt for a station address. Enter the address of the print server to be named. SETPROFILE will then prompt for a name for the printer (in addition to the other SETPROFILE options to be set). Enter a name and it will be set for that print server whenever the server boots from its /MAIN/SYSTEM/PRINTER volume. Printer name must be one word.

5.5 Formatting Header Pages: The Header Files

Before printing any file on the specified printer and forms, SERVER will print a header page using information found in the header file specified for the given printer in Servercmd.Text. Header files reside on the boot volume /MAIN/SYSTEM/PRINTER and are created, edited, and changed as needed by the System Manager.

Any text found in a printer's header file will be printed as found. Text and designs constructed from text characters may be entered.

Any of the reference values listed in the table below can also be entered into the header file, which should be formatted to resemble the header page. Arrange the desired values in any order on the page, with any associated text. When the header page is printed, the Server program will find the referenced values in the queued print request.

Or, the System Manager might create the company logo out of, for instance, asterisks, and enter the design into the header file, using the Pascal Editor. The design will be printed out at the start of each job on that printer that uses that header file. A sample file is shown below.

For example, typing

```
Copies: &COPIES
```

into the header textfile in line 1 will cause the header page to have

```
Copies: n
```

printed on its first line, where n is the number of copies specified for the job.

Non-printable ASCII characters must sometimes be output to a printer. For example, these characters may be used as escape sequences. The "&HEX" keyword in the header file allows the use of such characters. The syntax is

```
&HEX=xxyyzz....
```

where each character pair represents an 8-bit hex number. For example,

```
&HEX=1B1A49
```

in a header file sends the ASCII sequence ESC/SUB/I ($1B/$1A/$49) to the printer. Many daisywheel printers interpret such a sequence as a RESET command.

Value	Meaning
&DATE	Date and time
&QNUM	Queue number assigned by SERVER to request
&USER	User identification, such as initials, set in user Defaults.Text
&NAME	User's "name" such as full name, as set in user Defaults.Text "name"
&STATION	User station number ($hexadecimal)
&ID	"User" value as set in user Defaults.text (Pascal), or user station number (Pascal or DOS). Can be used by BLOCK.CHARSET to print header logo (see next section)
&PATH	Network pathname of volume on which the file to be printed resides
&FILE	File(s) to be printed
&ERRMSG	Error message. Printed if job cannot be printed (e.g., "File Not Found")
&COPIES	Number of copies to be printed
&EJECT	Page length
&NFS	File server for files to be printed (name if set; address otherwise)
&NFSNO	File server station number
&SERVER	Printer server name, if set
&SERVNO	Printer server station number
&PRINTER	Printer name
&SETUP	Printer setup name
&PRIORITY	Job priority
&TITLE	Page title set in user or system Defaults.Text, or from print request program
&HEX=xxyy...	Provides a mechanism for entering ASCII characters in hexadecimal format. (For example, if a printer required an <ESCAPE> 3 sequence to initialize the printer, this would be entered as: &HEX=1B33.)

Note: In addition to text, designs constructed from text characters, and referenced "&" values, the header page can contain an eight-line logo of the user value as set in the (Pascal) user's Defaults.Text, or of the user station address (DOS or Pascal). This is discussed in the following section.

A typical file might look like:

```
     Print Request Number &QNUM

     Station: &STATION
                               <LOGO constructed by
        Name: &NAME             BLOCK.CHARSET using &ID>

        Date: &DATE
NFS Pathname: &PATH
                                  <LOGO DESIGN>

 File Server: &NFS(&NFSNO)
Filename (s): &FILE
              &FILE
              $FILE
              &FILE

Print Server: &SERVER (&SERVNO)
       Setup: &SETUP
    Priority: &PRIORITY
      Copies: &COPIES
       Eject: &EJECT

         &ERRMSG
```

5.6 Formatting the User Logo: BLOCK.CHARSET

The SERVER program will print a user identification logo on the header page of each job if the header textfile is formatted to use the "&ID" value. The logo will use the "user" value set in Defaults.Text for Pascal users (referenced by "&ID"), or the station number at which the job was queued (for Pascal or DOS users), and will be eight lines high.

BLOCK.CHARSET, a file found on the SERVER boot volume, is provided as part of the print system and is used in printing the logos. The file cannot be edited.

To include a user logo on the header page, the following 8 lines must be typed, as shown, at the location on the header page where the logo is to begin:

```
&BLOCK1=&ID
&BLOCK2=&ID
&BLOCK3=&ID
&BLOCK4=&ID
&BLOCK5=&ID
&BLOCK6=&ID
&BLOCK7=&ID
&BLOCK8=&ID
```

A long user ID will wrap around the header page if the lines are not typed far enough to the left of the page.

5.7 User Prompts: the "Request" Textfiles

5.7.1 User Command Menu Prompts: REQUESTCMD.TEXT

When the user executes Pascal:Request, a menu of print server commands is displayed. The format of this menu, and the commands it makes available, are determined by the contents of the Requestcmd textfile located on the shared library volume.

The distributed textfile has the form:

```
; Comment line
WRITE textline (provides prompts)
ASK textline (requests prompt values)
IF prompt (executes program or displays textfile,
according to prompt letter entered)
```

Specifically:

```
WRITE   Server commands...
WRITE     P - PRINT server request
WRITE     F - FILE server request
WRITE     S - Display STATUS of previous requests
WRITE     D - Display STATUS of print queue
WRITE     K - KILL a previous print request
WRITE     Q - QUIT (exit this program)
WRITE     H - HELP (display tutorial)
WRITE     ? - HELP (display tutorial)
WRITE
ASK Enter command letter

IF P   PASCAL:PRINT
IF K   PASCAL:KILLENTRY
IF S   PASCAL:SHOWENTRY
IF D   PASCAL:SHOWQUEUE
IF F   PASCAL:CMD
IF Q   &QUIT
IF ?   &HELP
IF H   &HELP
```

The menu formatted in the Requestcmd textfile is written on the user's screen and the user is prompted to select a command letter. Typing P, K, S, D, or F calls the PRINT, KILLENTRY, SHOWQUEUE, SHOWENTRY, or CMD programs. Typing Q, references the internal "Quit" command. Typing "Help" or "?" references the Requesthlp textfile (see following section).

Requestcmd.Text can be edited by the System Manager, using the Pascal Editor, to display different prompts, or to prompt for other programs installed on the shared Pascal library disk.

5.7.2 User "HELP" or "?" Prompts: Requesthlp.Text

Users running the print request program in the Pascal environment have the option of typing "HELP", "HELP <subject>","H", "H <subject>", "?", or "? <subject>" in response to program prompts. If "HELP", "H" or "?" alone is entered, a subject is prompted for:

```
Help on what subject?
```

The HELP message that is subsequently displayed resides in Requesthlp.Text on the Pascal shared library volume. The program's HELP command, as distributed, has the format:

```
HELP <subject>
```

Subjects available are: GENERAL, ALL, PRINT, STATUS, DISPLAY, KILL, NFS.

If "<Return>" is typed for subject, the subject "GENERAL" is used. If "HELP ALL" is typed, the help text for every subject is displayed.

Subjects in the Requesthlp.Text file are identified by lines starting with "SUBJECT:", with subject and prompt name following. The subject description ends at the next "SUBJECT:" or at the end of the file. For example, if the lines

```
SUBJECT: D;DISPLAY
```

are found in Requesthlp.Text, the text that follows will be printed on the user screen in response to the HELP DISPLAY command.

5.8 Pascal Print Request System Defaults

As explained in detail in Section 3.5, the Pascal REQUEST program, when first executed, checks the user's boot volume for a Defaults.Text file. This file is used to preset REQUEST printing options.

Defaults may also be set in a Defaults.Text file on the shared library volume, although user defaults will take precedence over them.

The distributed system defaults.text has the form

```
;Comment lines
Print:  eject 62 printer printer1
Print:  title "Network Print Server"
Print:  copies 1 setup standard nfs $fe print
Print:  priority standard
```

As explained in Section 3.5, these text lines will set the default page length for print jobs to 62 lines. Copy default will be 1. Setup and priority requested will be "Standard". The default file server will be $FE. The title "Network Print Server" will be printed at the top of each page, together with the time and date, page number, and file being printed.

CHAPTER 6

Maintaining the System

6.0 Introduction

Once all system textfiles and codefiles are installed and tailored to fit your individual network(s), the print server system will accept print requests from users via the DOS and Pascal print request programs, and execute them via the Server programs running on print server workstations.

In time, however, it will become necessary to reconfigure the system. Printers will be added or removed, new print server stations added, and new networks connected. Additionally, the Setup parameter will have to be renamed, as users need checks, labels, and other materials printed. Finally, unwanted print request files will have to be removed from the print queues.

A menu of commands is available to the System Manager at the console stations, to facilitate system reconfiguration and to allow the Manager to monitor ongoing operation of the system.

The command menu is

```
PRINT SERVER COMMANDS ARE:

 F  =  NFS COMMAND
 P  =  QUEUE A FILE FOR PRINT
CS  =  CONFIGURE SERVER
CP  =  CONFIGURE PRINTER
 I  =  SERVER INFO
CH  =  CHECK QUEUES
 Q  =  QUIT
COMMAND?
```

The "CS" and "CP" commands are discussed in Sections 6.1; the other commands, in Section 6.2. Section 6.3 explains how to remove incorrect requests from the queue files.

To display the command menu, press the space bar when the Server program is in the "Waiting" mode. If a console password has been set, the program will prompt for it. If the password is entered incorrectly, the program will return to its "Waiting" mode.

Note: Using these commands halts all other action by the print server.

6.1 Reconfiguring the System Parameters: the SET Codes

In the preceding chapter, we explained how to configure your print system by setting various parameters and by entering various information into Pascal files on various NFS volumes. Some of these parameters can only be changed by editing the relevant textfiles, using the Pascal Editor (e.g., passwords in the Server boot volume startcmd text, "Help" prompts screen text, and job header pages).

However, any parameter in Servercmd.Text can be changed from within the Server program using the "CS" (CONFIGURE SERVER) and "CP" (CONFIGURE PRINTER) commands from the Server menu.

To change or add	Use	Section
Printer Name	CP	6.1.1
Controller Slot (Printer)	CP	
Setup Name	CP	
Printer Width	CP	
Overnight Hours	CS	6.1.2
File Server	CS	
Interface Slot (File Server)	CS	
Console Password	CS	

6.1.1 Reconfiguring the Printer Parameters: SETPRINTER.CODE

Some forms used in your printer may require a different printer setup from the standard forms. Character spacing, lines per inch, forms length, and ribbon may be different for special forms. The print server uses the name SETUP to mean a combination of setup parameters required to use a particular form.

For example, suppose that a user wishes to print a series of checks on the printer named ACCOUNTING. The ACCOUNTING printer's setup name has been set to "STANDARD" by the Servercmd textfile, and the standard setup uses something other than checks. The user will queue a print request, specifying "CHECK" setup (or any other name chosen by the System Manager to signify the desired setup) instead of "STANDARD" setup.

The Server will skip this request, leaving it in the print queue until the user or System Manager uses the "CP" command to change the ACCOUNTING printer's setup name from STANDARD to CHECK. This should be done after the actual setup change has been completed and the printer has been physically configured to print checks. While the "CP" command is being used, the print server will not attempt to print any jobs.

With the request queued, and the Server program checking the queue, the System Manager presses the space bar and the Server menu appears. Typing in "CP" causes SETPRINTER.CODE to be loaded from the Server boot volume. SETPRINTER displays the printer parameters that can be changed. For example,

```
       CONFIGURE PRINTER    VERSION ___

  --->      PRINTER NAME?   ACCOUNTING
             SLOT NUMBER:   1
           PRINTER SETUP:   STANDARD
           PRINTER WIDTH:   132
      ATTACHED (YES/NO):   YES

            PRINTER NAME:   DAISYWHEEL
             SLOT NUMBER:   2
           PRINTER SETUP:   STANDARD
           PRINTER WIDTH:   80
      ATTACHED (YES/NO):   YES

            PRINTER NAME:
             SLOT NUMBER:
           PRINTER SETUP:
           PRINTER WIDTH:   80
      ATTACHED (YES/NO):   NO

  PRINT A TEST FILE (YES/NO): NO
  [TYPE <ESC> WHEN DONE.]
```

The values displayed by the SETPRINTER program are those specified in the boot volume's Printcmd.Text. In this example, two printers are connected to the server being used. If more than 3 printers are present, printer parameters for the additional printers must be changed in Printcmd.Text directly, using the Pascal Editor.

To change a parameter in the display move the cursor to the line to be changed. In this example, the Setup value for these ACCOUNTING printers is to be changed to "CHECKS". When CHECKS is entered, SETPRINTER changes that Setup value in Printcmd.Text to CHECKS. In the event that more than one printer is named ACCOUNTING, the correct printer is selected because the slot in the print server that contains its controller card is specified.

Upon exiting Setprinter.Code (with Printcmd.Text reconfigured), the Server program will automatically recheck the "waiting" queue files and will discover the request for printing with the "CHECKS" setup.

When the check printing job has been completed, the printer can be reconfigured using the CP command, to return the Setup name to STANDARD. Since CP changes the Printcmd file text, any changes made will remain in effect until CP is used again (or until the Printcmd text is edited from the Pascal command line).

Note that if the actual printer setup is changed at the same time that the "CP" command is used, no jobs will be printed using an incorrect setup. Suppose, however, that the printer setup is changed (special forms are inserted, for example) some time before "SETUP" is changed using "CP"? Perhaps it is not convenient for the System Manager to be present when the checks are installed by a user from the Accounting Department, but the print request for "CHECKS" has already been queued. Then requests for printing on "STANDARD" paper will be printed using the newly installed check setup.

The System Manager cannot simply change the SETUP value to CHECKS, or the queued accounting request will be printed out using the Standard setup. Since the print server has another printer attached, however, we may not want to simply turn it off for a while.

In this event, the System Manager must make use of the "ATTACHED" option seen in the sample display above. SETUP can be changed to CHECKS, and the Printer "detached" by answer "N" to the prompt "ATTACHED (YES/NO)". Later, after the checks have been installed, the System Manager can "reattach" the printer.

To print a test file, enter its Pascal volume and filename. The volume must be currently mounted at the server station. To mount a volume, use the "F" command discussed in Section 6.3 below. (You may wish to keep a test file on your server boot volume.)

A test file might be convenient, for example, if you are changing the SETUP parameter to CHECKS and wish to be sure the checks have been installed with the correct alignment and that the printer is functional.

The "CP" commands allows only the first three printers listed in Printcmd.Text to be reconfigured. To add or subtract other printers, or to change their parameters, edit the Printcmd.Text using the Pascal Editor. (Use the "Q" command, below, to reach the Pascal command line.)

6.1.2 Reconfiguring the Server: SETSERVER.CODE

In a second example, Station $28 (named MARKETING) serves the printer ACCOUNTING through slot 1, and DAISYWHEEL through slot 2. The only file server station (on any network) set for the MARKETING print server is $FE, CENTRAL.

A user wishes to print out files that reside on a hard disk served by the SECONDARY file server $FD, on the Station $28 ACCOUNTING printer, changing the Setup parameter from STANDARD to CHECKS.

Both "CS" and "CP" commands must be used: "CP" as explained in the preceding section, to change Setup to "CHECKS", and "CS" to add the file server $FD to the system. Typing "CS" causes Server to display:

```
     CONFIGURE SERVER    VERSION ___

             CONSOLE PASSWORD:  GOLD
  -->  NIGHT  STARTING HOUR:  3
                  ENDING HOUR:  6

                  FILE SERVER:  CENTRAL
                  SLOT NUMBER:  6
                      STATION:  $FE
           ATTACHED (YES/NO):  YES

                  FILE SERVER:
                  SLOT NUMBER:
                      STATION:
           ATTACHED (YES/NO): NO

                  FILE SERVER:
                  SLOT NUMBER:
                      STATION:
           ATTACHED (YES/NO): NO

     [TYPE <ESC> WHEN DONE.]
```

Note that the console password "GOLD" has been set in Servercmd.Text. "GOLD" must be typed in, in response to the prompt "Enter Password?", before the "CS" command can be typed in, and before the "Configure Server" page will be displayed.

In this example, only one file server, $FE, is listed in Servercmd.Text. To add $FD, the System Manager must move the cursor to one group of blank FILE SERVER, STATION, and SLOT lines and type in the appropriate file server station number (in decimal, or in hex with a "$"), and the number of the print-server slot holding the network interface card for that station, answering "ATTACHED" with "YES".

Note: Setserver.Code cannot change File Server names. For this reason, the cursor jumps over the "File Server" name in the CONFIGURE SERVER menu. The name will be filled in later by the Server program, when you exit the "CS" program and the system is reconfigured in response to your input.

File Servers, like printers, can be temporarily "detached" by changing the ATTACHED value for the server from "YES" to "NO". This will be useful, for instance, when the System Manager knows that a file server will be temporarily out of service.

As SETPRINTER.CODE changes Printcmd.Text, so the SETSERVER program changes Servercmd.Text, to reflect the changes entered at the console. After Servercmd.Text has been reconfigured, the Server program will automatically recheck the "skipped" files in the request queue.

A file server for another network can also be added using "CS". This is shown below for illustrative purposes. Its address may be identical to that of a server or user station on the first network: ambiguity is avoided by the use of slot numbers. However, File Server names, set by the NFS System Manager(s), must be unique.

```
          CONFIGURE SERVER   VERSION ___

                CONSOLE PASSWORD: GOLD
       -->  NIGHT  STARTING HOUR:  3
                     ENDING HOUR:  6

                     FILE SERVER:  CENTRAL
                     SLOT NUMBER:  6
                         STATION:  $FE
               ATTACHED (YES/NO):  YES

                     FILE SERVER: SECONDARY
                     SLOT NUMBER: 6
                         STATION: $FD
               ATTACHED (YES/NO): Yes

                     FILE SERVER: OTHERNET
                     SLOT NUMBER: 4
                         STATION:  $FE
               ATTACHED (YES/NO): Yes

         [TYPE <ESC> WHEN DONE.]
```

The "CS" command allows only the first three file servers listed in Servercmd.Text to be reconfigured. To add or subtract other file servers, or to change their parameters, edit the Servercmd.Text "NFS" lines using the Pascal Editor. (Use the "Q" command, below, to reach the Pascal command line.)

6.2 Other Print Server Console Commands

Note: Remember that all action stops on the printers served by the print server when these commands (and the "CP" and "CS" commands) are being used at the console.

F = NFS COMMAND

Typing "F" from the Server menu causes the Server program to suspend printing activities and load and run the NFS CMD program. When the CMD greeting and prompt appear, enter NFS commands as needed. Typing "Q" quits the program and returns control to the Server program, which will return to its wait-and-search mode for new print requests.

Warning: Do not unlock locks or use the SET DIR command while in the NFS CMD program.

P = QUEUE A FILE FOR PRINT

Typing "P" from the Server menu causes the Server program to chain to Pascal:Print. Use "P" to reach "Print" when you wish to queue print requests at a print server console.

I = SERVER INFO

Typing "I" from the Server menu causes the following information to be displayed:

Time
Print Server Name
"Overnight" priority hours
For currently attached file server: Names, Status, Slot Numbers, and Addresses
Internal reference information.

For example:

```
WED  07-OCT-1981  11:07:41
THIS SERVER'S NAME IS FISCAL
NIGHT IS 3 TO 6
REQUEST      PROGRAM
PRINT        DRVPRINT

FILE SERVER    STATUS   CHANNEL
MARKETING      ACTIVE   SLOT=6,STN=$FE
TECHNICAL      ACTIVE   SLOT=4,STN=$FE
```

(The last 2 lines in this example contain reference information for the server program's internal use, telling the Server program that "Print" commands found in the Request files should be implemented using DRVPRINT.CODE)

Having displayed this information, the Server program will return to its wait-and-search mode.

<u>CH</u> = <u>CHECK QUEUES</u>

Typing "CH" from the Server menu causes the Server program to display the file server queues currently online and the requests currently queued in them that have been skipped:

```
      MARKETING QUEUES WILL BE CHECKED
      TECHNICAL QUEUES WILL BE CHECKED

11:05 MARKETING PRINT REQ 37
      NOTE: NEEDS MARKETING SETUP GREEN

11:05 TECHNICAL PRINT REQ 67
      NOTE: NEEDS TECHNICAL SETUP BROWN
```

Here, the print server is configured to check two file servers for print requests. The file servers are named "MARKETING" and "TECHNICAL". Each has a print request waiting in queue with print system parameters that do not match those currently set; hence, the requests are waiting. No other requests are presently queued and the server is waiting.

Section 6.3 below discusses how to obtain more information on waiting print requests and how to insure that they are serviced or removed from the queue.

Having displayed this information, the Server program returns to its wait-and-search mode.

Q = QUIT

Typing "Q" from the Server menu exits the program and returns to the Pascal command line.

6.3 Monitoring the QUEUE Files

If the system parameters specified by users in their print requests do not match the parameters set in the Server text files, the print requests will not be printed and will wait in the print request queue. Parameters may not match, for example, because the user requires a different setup on a printer, or because the files to be printed are located on a file server not currently attached. Note for example, that some forms used in your printer may require a different printer setup from the standard forms. Character spacing, lines per inch, forms length, and ribbon may be different for special forms. The print server uses the name SETUP to mean a combination of setup parameters required to use a particular form.

The System Manager is informed of the existence of waiting files by the user, whose job has not been printed, or by the Server or Pascal:Request programs. The Server program rechecks the Queue files, reporting any waiting requests

1. whenever the Setprinter and Setserver files are reconfigured using the "CS" and "CP" commands
2. at the beginning of the "Overnight" period
3. when the "CH" command is issued from the server console

Waiting requests are also displayed in the Pascal:Request program by the "D" (Display queue status) command (that is, by Showqueue.Code), and by the "S" (Display request status) command (Showentry.Code). "D" and "S" are discussed in Section 3.4. When using the "S" command, the System Manager can specify "Dump" in response to the prompt "Enter queue number or ID" to see the queue number of waiting requests and to have displayed all information listed in those requests. To use "Dump", any password for the Queue files must be set at the System Manager's station before Pascal:Request is executed.

When waiting files are discovered, the System Manager must use the Showqueue and Showentry programs to learn more about them: it will be necessary to learn why they are waiting.

If the print request parameters have been entered correctly in the user's request, but some reconfiguration of the system as required in order for the job to be printed, use the console "CP" and "CS" commands to make the necessary changes.

If the print parameters in the request have been set incorrectly, the user can use the "K" (Kill Entry) command from the user Pascal:Request command menu to eliminate the files.

The Kill command creates a request in the print queue to remove the original print request. The command will only kill requests made at the same station as the kill request.

The System Manager can eliminate files from the queue, at the print server console or at any user workstation, by X(ecuting) Pascal:CMD (the NFS command program) and Deleting the /MAIN/SYSTEM/QUEUE/REC/REQ # files with the appropriate queue (request) numbers at the ends of their pathnames:

```
DELETE/MAIN/SYSTEM/QUEUE:XXX/REC:YYY/NUMBER
```

where XXX and YYY are NFS passwords set in the request files.

In the case of a system malfunction that causes incorrect information to be written into the MASTER volume, /MAIN/SYSTEM/QUEUE/MASTER can be deleted. The system will automatically rebuild it when next executed.

6.3.1 "Waiting" Files on Multiple File Servers and Multiple Networks

If waiting requests exist on more than one file server on a network (as opposed to waiting requests on one file server that specify files to be printed from multiple file servers on the network), the codefiles Killentry, Showentry, and Showqueue must be available on each file server on each network. It will only be possible to examine and/or kill waiting files on disks served by the current default file server.

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REFERENCE SHEET

PRINT SERVER NAME	ADDRESS	PRINTER NAME	ADDRESS	FORMS

READERS COMMENT FORM

CLUSTER/ONE MODEL A
NESTAR SYSTEMS, INCORPORATED

You are encouraged to use this form to communicate to Nestar any problems, bugs or suggestions associated with Nestar products. We would like your comments on improving the system itself, as well as this documentation.

Nestar installation location:

Submitter's name :

Address :

Nestar environment

Model A or Model One:
Hard disk size (if present):
Number of user stations:
Language used:
Type of application:

Description of problem or suggestion:

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2585 E. Bayshore Road
Palo Alto, California, 94303

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